EZPanel Enhanced
EZText Enhanced
EZTouchPLC
EZTextPLC
EZMarquee
EZPLC & EZI/O
EZ Touchscreen CE Computer
EZCE Touchpanel
EZMonitor

336 pages of the most SENSIBLE Automation Products

Designed and built in USA by

AVG

EZMonitor User's Manual

Manual Part Number EZ-MONITOR-M

Revision A

EZ 123 BY AVG

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EZAutomation

1-877-774-EASY (774-3279)

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WARNING!

Visualization products such as EZAutomation's EZMonitor are not fail-safe devices and as such must not be used for protection purposes and or safety in any application. Any reliance on these devices for equipment or personnel safety is unwarranted. The diagrams and examples in this user manual are included for illustrative purposes only. The manufacturer cannot assume responsibility or liability for actual use based on the diagrams and examples.

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EZ-MONITOR-M

EU Information

EZMonitor is manufactured in compliance with European Union (EU) Directives and carries the CE mark*. EZMonitor has been tested under CE
Test Standard #EN55011, and is submitted for approval. The following information is provided to comply with EU documentation requirements.

Please NOTE: Products with CE marks perform their required functions safely and adhere to relevant standards as specified by EU directives provided when used according to their intended purpose and the instructions provided in this manual. The protection provided by the equipment may be impaired if the equipment is not used in accordance with this manual. Only replacement parts supplied by EZAutomation, or its agents should be used.

Technical Support

If you need assistance, please call our technical support at 1-877-774-EASY or FAX us at 1-877-775-EASY.

Warranty

EZAutomation products carry a 2 year warranty against defects in materials and workmanship. We will replace or repair the defective product at our discretion. The warranty will be null and voided if the products are abused or used outside of the product specifications.

Out of Warranty Repairs

If your EZMonitor is out of warranty, contact EZAutomation's Customer Service Department for an evaluation of repair costs @ 1-877-774-EASY. You can then decide whether it is more economical to proceed with factory repairs or to purchase a new EZMonitor.

Returns/30-Day Money Back Guarantee

EZAutomation products are backed by a 30 day, unconditional, money back guarantee. You may return the product for any reason for prompt exchange, credit, or refund (excluding shipping and handling charges). Details of Warranty and Return procedures are detailed in the Introduction section of the EZAutomation Catalog.

* Pending

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1

Getting Started

In this chapter....

- Manual Organization
- Product Overview
- Where to Use EZMonitors
- Check list to get started
- Quick and EZ Start

1.1 Manual Organization

The table below provides an overall description of the topics covered within this manual.

Chapter	Description
	Chapter 1: Getting Started Provides Manual Organization and lists what you need to get started to connect EZMonitor to your PC.
	Chapter 2: Models, Features and Specifications Provides you with a table listing the various models, their part numbers and special features. Lists the important features and hardware specifications for different models available
	Chapter 3: Installation, Wiring, and Connections Provides detailed information on how to connect EZMonitors for service power, installing video cables, along with Touch Screen communications wiring. Also provides dimensional and mounting information.
	Chapter 4: Maintenance and Troubleshooting Provides information on how to maintain EZMonitors by providing steps to ensure long life along with Troubleshooting tips.
	Appendix A: This part of the manual describes in detail the steps necessary to install touch screen communication drivers for various operating systems.

1.2 Product Overview

EZMonitor is an industrial strength display that can be used with any standard, commercial or industrial computer. All you need is a standard VGA port to connect EZMonitor to your computer. EZMonitor offers display and touchscreen solution for industrial environments not suited for standard monitors. The following will provide you a brief overview of EZMonitors.

Powder Coated Aluminum Bezel
Slim yet sturdy front bezel with industrial hardened studs pressed-in.

NEMA 4, 4X front
Allows optimum protection against Hosedown and Splashing Water with Corrosion Resistance.

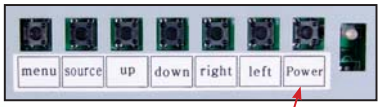
Analog Resistive Touch Screen
Reliable touch screen for tough industrial environments, Glove Proof!

TFT Color Displays
Ultra crisp picture quality with wide viewing angles.

Agency Approvals
UL, CUL, and CE (pending)

6' Industrial VGA Cable
Standard 6' length VGA cable included with every EZMonitor.

Menu Options and Screen Control
Adjust display settings with easy to navigate menu buttons.



Power Control
External power control button on rear end.

Aluminum Chassis
All metallic aluminum chassis with ventilation holes for minimal heat buildup.

Touch Screen Port
Communication port for EZMonitors with Touch Screen.

VGA Port for Signal Input

6' Touchscreen Communication Cable
Standard 6' long touchscreen USB cable included with every Touchscreen model EZMonitor. Touchscreen Drivers included for easy installation with Windows 95, 98, 2000, NT, ME, CE, XP and DOS.

12 VDC Input Power
Take advantage of your existing 12VDC power supply in your system. EZMonitor is shipped with two 20 ft. wires to connect to your 12 VDC. Removable Phoenix Terminal Block is provided for the power wiring and is shipped with each EZMonitor. For 110-240 VAC applications, we can supply wall plug-in 12 Volt power supplies also.

1.3 Where to use EZMonitors

Use EZMonitors to display information from your PC any where on your plant floor. It has excellent noise, shock, and vibration ratings. Analog resistive touch screen (on select models) allows user input with the highest resolution and makes user input easier then ever. With EZMonitors you don't have to buy standard monitors and enclose them in special housings just to survive thermal shock and water-proofing. EZMonitors have Nema 4,4x rated front bezel to provide the strongest protection from water and dusty environments.

1.4 Check list to get started

Before you start installing your EZMonitor, take a couple of moments and verify that you have all the following for quick and easy installation of your EZMonitor:

- EZMonitor
- 12 VDC Power Input*
- Video Cable**
- Touch Screen communication cable**
- Appropriate touch screen driver for your operating system (e.g. Win 95/98, Win XP etc)**

* NOT included with the purchase of EZMonitors.
All EZMonitors require a 12VDC power input for operation.
110/220 VAC to 12 VDC power supply available separately
(P/N EZ-MPS-A; EZ-MPS-B)

** Every EZMonitor is shipped with a standard 6' Video Cable for operation with most of the computers.
Every EZMonitor with touch screen is also shipped with a 6' touch screen communications cable to connect with a standard PC (USB cable).
This manual on CD also has all the Touchscreen drivers.

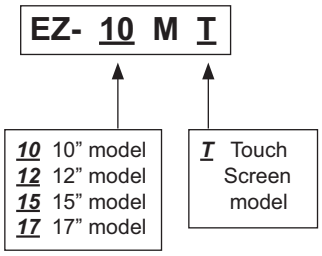
1.5 Features

- Nema 4,4x Enclosure
- Powder Coated Aluminum Bezel
- Rugged Metal Chassis
- Hard Coated Screen Surface (3H)
- Analog Resistive Touch Screen
- TFT LCD Displays
- Standard VGA Input Signal
- Wide Viewing Angles
- Anti-Glare Treated Front Polarizer
- Minimal Power Consumption
- 40-50K Hours Rated Half Life
- 12VDC Power Input
- Electrical Noise Immunity
- External Buttons for Power and Display Control
- Minimal Mounting Depth (Slim Design), 1.9”
- Ultra LOW Heat Build-up
- UL, CUL, CE certification*

* Pending

1.6 EZMonitor Part Numbering

EZMonitors use very simple part numbering system. The following describes the convention used in numbering EZMonitors.



1.7 EZMonitor Part Numbers

Part Number	Description	Enclosure
EZ-10M	10” EZMonitor	Nema 4,4x
EZ-10MT	10” EZMonitor with Touch Screen	Nema 4,4x

Part Number	Description	Enclosure
EZ-10M	10” EZMonitor	Nema 4,4x
EZ-10MT	10” EZMonitor with Touch Screen	Nema 4,4x

Part Number	Description	Enclosure
EZ-10M	10” EZMonitor	Nema 4,4x
EZ-10MT	10” EZMonitor with Touch Screen	Nema 4,4x

Part Number	Description	Enclosure
EZ-10M	10” EZMonitor	Nema 4,4x
EZ-10MT	10” EZMonitor with Touch Screen	Nema 4,4x

1.8 Accessories

Part Number	Description
EZ-MPS-A	Molded design cord set power supply: Input: 110V-240VDC at 50-60Hz, Output: 12VDC, 3.3A
EZ-MPS-B	Molded design cord set power supply: Input: 110V-240VDC at 50-60Hz, Output: 12VDC, 5A
EZ-MVCBL-10	10’ shielded video cable
EZ-MVCBL-25	25’ shielded video cable
EZ-MVCBL-50	50’ shielded video cable
EZ-????	?????

1.9 Specifications

EZMonitor 10”, 12”, 15” and 17” Model Specifications				
Part Number	**EZ-10M EZ-10MT (Touchscreen)**	**EZ-12M EZ-12MT (Touchscreen)**	**EZ-15M EZ-15MT (Touchscreen)**	**EZ-17M EZ-17MT (Touchscreen)**
Display Type	10.4” SVGA TFT Color	12.1” SVGA TFT Color	15” XGA TFT Color	17” SXGA TFT Color
Enclosure	NEMA 4, 4X Front plate			
Active Screen Size (Viewing Area)	211.2x158.4mm	246x184.5mm	304.1x228.1mm	337.9x270.3mm
Display Surface Treatment	Hard Coating (3H), Anti-glare treatment of the front polarizer, HAZE (13%)			
Resolution	800 x 600	800 x 600	1024 x 768	1280 x 1024
Contrast Ratio	400:1	200:1	350:1	350:1
Display Brightness /Half Life Hours	220 nits/40,000	300 nits/50,000	250 nits/40,000	250 nits/50,000
Input Voltage	12VDC			
Power Consumption	Total 10 Watt (typ.)	12 Watt (typ.)	15 Watt (typ.)	30 Watt (typ.)
Agency Approval	UL, CUL, CE (pending)			
Operating Temperature	0° to 60°C			
Storage Temperature	-20° to 65°C			
Humidity	10-90% RH			
Life Time	4 0,000 Hours	50,000 Hours	40,000 Hours	50,000 Hours
Electrical Noise	NEMA ICS showering arc approval pending			
Vibration with Terminal Block Power Wiring	2.0G, 0.37oct/min 3 axis, 1 hour/axis			
Shock with Terminal Block Power Wiring	20G, 2ms one shock of each six faces			
Ext. Dimensions	12.10” x 9.7” x 1.75”	13.45” x 10.50” x 2.12”	16.25” x 12.50 x 1.9”	18.25” x 14.50” x 2.18”
Weight	5.5 lbs.	6.1 lbs	7.0 lbs	10.51 lbs

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2

Models, Features and Specifications

In This Chapter....

- Features
- EZMonitor Part Numbering
- EZMonitor Part Numbers
- Accessories
- Specifications

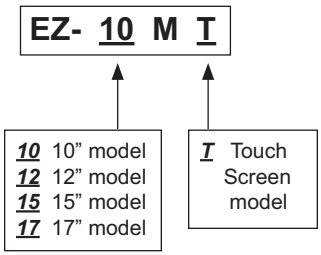
2.1 Features

- Nema 4,4x Enclosure
- Powder Coated Aluminum Bezel
- Rugged Metal Chassis
- Hard Coated Screen Surface (3H)
- Analog Resistive Touch Screen
- TFT LCD Displays
- Plug-n-Play Setup
- Standard VGA Input Signal
- Wide Viewing Angles
- Anti-Glare Treated Front Polarizer
- Minimal Power Consumption
- 40-50K Hours Rated Half Life
- 12VDC Power Input
- Electrical Noise Immunity
- External Buttons for Power and Display Control
- Minimal Mounting Depth (Slim Design), 1.9”
- Ultra LOW Heat Build-up
- UL, CUL, CE certification*

* Pending

2.2 EZMonitor Part Numbering

EZMonitors use very simple part numbering system. The following describes the convention used in numbering EZMonitors.



2.3 EZMonitor Part Numbers

Part Number	Description	Enclosure
EZ-10M	10” EZMonitor	Nema 4,4x
EZ-10MT	10” EZMonitor with Touch Screen	Nema 4,4x

Part Number	Description	Enclosure
EZ-10M	10” EZMonitor	Nema 4,4x
EZ-10MT	10” EZMonitor with Touch Screen	Nema 4,4x

Part Number	Description	Enclosure
EZ-10M	10” EZMonitor	Nema 4,4x
EZ-10MT	10” EZMonitor with Touch Screen	Nema 4,4x

Part Number	Description	Enclosure
EZ-10M	10” EZMonitor	Nema 4,4x
EZ-10MT	10” EZMonitor with Touch Screen	Nema 4,4x

2.4 Accessories

Part Number	Description
EZ-MPS-A	Molded design cord set power supply: Input: 110V-240VDC at 50-60Hz, Output: 12VDC, 3.3A
EZ-MPS-B	Molded design cord set power supply: Input: 110V-240VDC at 50-60Hz, Output: 12VDC, 5A
EZ-MVCBL-10	10’ shielded video cable
EZ-MVCBL-25	25’ shielded video cable
EZ-MVCBL-50	50’ shielded video cable
EZ-TERM3	3 Point Terminal Block adapter for power input

2.5 Specifications

EZMonitor 10", 12", 15" and 17" Model Specifications				
Part Number	**EZ-10M EZ-10MT (Touchscreen)**	**EZ-12M EZ-12MT (Touchscreen)**	**EZ-15M EZ-15MT (Touchscreen)**	**EZ-17M EZ-17MT (Touchscreen)**
Display Type	10.4" SVGA TFT Color	12.1" SVGA TFT Color	15" XGA TFT Color	17" SXGA TFT Color
Enclosure	NEMA 4, 4X Front plate			
Active Screen Size (Viewing Area)	211.2x158.4mm	246x184.5mm	304.1x228.1mm	337.9x270.3mm
Display Surface Treatment	Hard Coating (3H), Anti-glare treatment of the front polarizer, HAZE (13%)			
Resolution	800 x 600	800 x 600	1024 x 768	1280 x 1024
Contrast Ratio	400:1	200:1	350:1	350:1
Display Brightness /Half Life Hours	220 nits/40,000	300 nits/50,000	250 nits/40,000	250 nits/50,000
Input Voltage	12VDC			
Power Consumption	Total 10 Watt (typ.)	12 Watt (typ.)	15 Watt (typ.)	30 Watt (typ.)
Agency Approval	UL, CUL, CE (pending)			
Operating Temperature	0° to 60°C			
Storage Temperature	-20° to 65°C			
Humidity	10-90% RH			
Life Time	4 0,000 Hours	50,000 Hours	40,000 Hours	50,000 Hours
Electrical Noise	NEMA ICS showering arc approval pending			
Vibration with Terminal Block Power Wiring	2.0G, 0.37oct/min 3 axis, 1 hour/axis			
Shock with Terminal Block Power Wiring	20G, 2ms one shock of each six faces			
Ext. Dimensions	12.10" x 9.7" x 1.75"	13.45" x 10.50" x 2.12"	16.25" x 12.50 x 1.9"	18.25" x 14.50" x 2.18"
Weight	5.5 lbs.	6.1 lbs	7.0 lbs	10.51 lbs

3

Installation, Wiring and Connections

In this chapter....

- Safety Considerations
- Installation Considerations
- Environmental Considerations
- Electrical Considerations
- Wiring and Connections
- Connecting EZMonitor to a PC
- Mounting Cutouts

3.1 Safety Considerations

Please follow all applicable local and national codes to ensure maximum safety of the equipment and personnel. The installation and operational environment must be maintained per the latest revision of these codes. You are responsible to determine the codes to be followed, and to verify the compliance of equipment, installation, and operation with the latest revision of these codes.

Plan for Safety

It is an absolute must to follow all applicable sections of:

- The National Fire Code
- The National Electrical Code (NEC)
- The National Electrical Manufacturer's Association (NEMA) codes.

Local regulatory and government offices usually provide excellent help to determine which codes and standards are necessary for safe installation and operation.

Safety Techniques

Safety is the most important element of a proper system installation. Adhering to these safety considerations ensures the safety of yourself and others, as well as the condition of your equipment. We recommend reviewing the following safety considerations:

1) Disconnecting Main Power

The main power switch should be easily accessible to the operators and maintenance personnel. It is important to make sure that all other sources of power including pneumatic and hydraulic are de-energized before starting the work on a machine or process controlled by a PLC or a PC.

2) Safety Circuits

Most of the machines are installed with safety circuits, like Limit switches, Emergency stop push buttons, and Interlocks. These circuits should always be hard-wired directly to the PLC. These devices must be wired in series so that when any one device opens, the PLC is automatically de-energized. This removes power to the machine. These circuits should not be altered in any case, since serious injury or machine damage could result.

3) Fail-Safe Operation

Our products are not fault-tolerant and are not designed or intended for use as on-line control equipment in hazardous environments requiring fail-safe performance, such as in operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life-support machines, weapons systems, clutch control systems on presses, in which the failure of the product could lead directly to death, personal injury or severe physical or environmental damage. External fail safe and/or redundant components are required to make your control system Fail-safe.

3.2 Installation Considerations

EZAutomation products have been designed and tested for operation in the most demanding industrial environments. Modern solid-state industrial controls are complex electronic equipment that operate at low levels of voltage and current, coexisting with components that operate at much higher levels of power. The difference in operating power characteristics between the high and low power control devices creates the possibility of unwanted signals being generated causing interference. The interference, which is a by-product of electrical noise, is not present at all times. However, it appears at random and during brief periods of time it can cause disruptions and errors in the operation of a control system.

Enhancement of a system's noise level immunity, and its tolerance to other environmental hazards can be accomplished by following proper system installation guidelines. The recommendations are of a general nature and constitute good industrial installation practice.

General Environmental Installation Considerations

Avoid installing EZMonitors in areas where the following conditions may exist:

- Environmental temperatures above or below those specified for EZ-Monitors.
- Prolonged exposure to humidity and liquids which may be sprayed or splashed on the equipment.
- Dusty environments where airborne particles may accumulate on equipment causing reduction of heat dissipation, and reduction in effective electrical spacing between components.
- Areas of excessive vibration.
- Areas of high-radiated electrical noise, such as near fields of transmitting antennas and areas in close proximity of arc welding stations.

3.3 Environmental Considerations

The following table lists the environmental specifications that generally apply to the EZMonitors.

Parameter Ratings

Operating Temperature	0 to 60 °C
Storage Temperature	-20 to 65 °C
Humidity	10 to 90% Relative Humidity, Non-condensing
Vibration Resistance	5 to 55 Hz, 2.0G, 0.37oct/min 3 axis, 1 hour/axis
Shock Resistance	20G, 2ms one shock of each six faces
Electrical Noise	NEMA ICS 2-230 Showering Arc, ANSI C37.90a SWC, Level C Chattering Test
Atmospheric Conditions	Non-corrosive gases

Agency Approvals

Your application may require Agency approval. EZPLC's agency approvals are:

- UL (Underwriter's Laboratories, Inc)*
- CUL (Canadian Underwriter's Laboratories, Inc)*
- CE (EU Certification)*

*Approvals in process. Check our website www.EZAutomation.net for the latest information.

3.4 Electrical Considerations

Understanding Electrical Noise and Shielding of Cables

This section will provide you with a very basic understanding of Electrical Noise and how to keep it away from EZMonitors.

Source of Electrical Noise

Industrial plants have a number of generators of electrical noise or sometimes also referred to as Radio Frequency Interference or RFI. Anytime an inductive load like a motor, motor starter, or solenoid is turned off, it generates a burst of excess energy that has to flow back to ground, just like electrical energy from a lightening storm has to flow back to Earth. Other sources are RF Welders or Radio Transmitters. RFI is short bursts of electrical energy at very high frequencies.

Cabinets

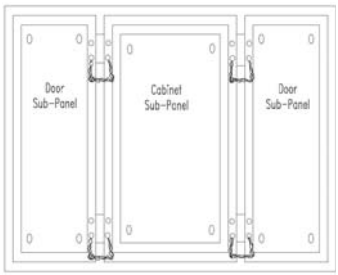
Equipment cabinets usually incorporate one or two doors and/or hinged cabinet panels. In addition, sub-panels may be utilized on those electronic controls and electromechanical items that are mounted. The goal here is to create a medium for mounting the equipment and ensure grounding of the control's chassis to it. Relying on door hinges and swinging panels for good metallic bond between hinged parts and the main body of the cabinet does not insure adequate grounding. That is why the use of ground straps is recommended. RFI enters electronic controls in two ways:

- Radiated RFI
- Conducted RFI

For most practical purposes, electronic devices, unless sitting right next to a powerful RFI transmitter, will not be affected by noise because air space severely attenuates such interference. On the other hand, conducted RFI travels over conductive surfaces such as power supply wires, electrical wiring of field devices, and worst of all; improper ground planes.
It is a common practice to isolate the sensitive electronics from RFI by providing Transformer or Choke Isolation on the Power Supply.

Cabling, Shielding, and Grounding

It is vital for the reliable operation of any electronic device to have any of its metallic surface well grounded to Earth. This not only provides for safe operation, it also will drain out any conducted RFI to Earth, away from the electronics. Obviously, the metal cabinet housing the EZMonitor should also be well grounded. The following section will detail these procedures. Power cables and communication cables should all be separate so that they do not couple the conducted RFI on any of these wires/cables.



Cabinet Door Grounding Straps

Cabinet Grounding

Equipment cabinets usually incorporate one or two doors and/or hinged cabinet panels. In addition, sub-panels may be utilized on those electronic controls and electromechanical items that are mounted.

The goal is to create a medium for mounting the equipment and ensure grounding of the control's chassis to it. Relying on door hinges and swinging panels for good metallic bond between hinged parts and the main body of the cabinet does not insure adequate grounding. That is why the use of ground straps is recommended. The equipment enclosures are generally either painted or anodized. It is imperative that the equipment chassis are grounded. Not only is this good safety practice, but it also helps noise immunity problems. Mounting of painted or anodized enclosures to like surfaces does not insure good metallic contact between the equipment chassis and cabinet. The use of star washers when mounting the EZMonitors, or other components, provides sufficient grounding on the panel.

Cabinet Wiring

The wiring of the EZMonitor to the "field" outside the cabinet must be by design. The wiring cannot be random in order to get the various points of the cabinet and the "field" electrically connected.

Some general rules that apply in most situations are:

- Provide a separate power source to electronic controls and keep this power buss away from any I/O power.
- The cabinet should be wired with a safety ground (the main safety ground wire gauge is determined by the cabinet's total current consumption) and in accordance with all electrical code requirements.
- Once the cabinet doors, stationary sub-panels and swing-out subpanels have been "strapped" to the main cabinet, it is not necessary to run safety ground wires from the equipment chassis terminals to the main safety ground connection.
- The safety ground terminal of each component can, and should be, connected with the shortest wire possible, to the cabinet or sub-panel frame.
- Plan the wiring routing. Keep all switched power in separate ducts and if there is AC and DC power being switched, keep the wiring of each branch separate from all wires and cables carrying low level signals.
- Keep all three phase power outside of the cabinet, but if it becomes necessary, keep the runs as short as possible and maintain the maximum possible distance between the three phase buss and all other wiring.
- Primary power leads to the control equipment (Base power terminals) should be made with a two wire twisted cable with approximately 12 turns per foot. Length of these cables should be kept to the minimum and to the greatest extent possible such cable runs should be kept separate from other wiring.
- In the case of AC powered equipment, the primary power should be provided separately from the power source used for I/O control.

EZMonitor™ Quick and EZ Wiring and Set-up Reference

3.5 Connecting EZMonitor to a PC

In order to connect your EZMonitor to your PC just follow the easy steps below:

1. Install appropriate TouchScreen communication drivers on your PC (for select models – Refer to appendix A for details for every OS available) See reverse side

2. Connect VGA Cable to EZMonitor and your PC (2)

EZMonitors have a standard VGA port built-in as shown in the image below. This VGA port can be used for connecting to any standard PC with a VGA output port. It has a standard high density VGA female connector (15 pin). The VGA port is Plug-n-Play where all you have to do is to connect to the VGA port of your PC for operation. Every EZMonitor is also shipped with 6' standard VGA cable to connect to a PC (IBM or compatible). Since it utilizes standard VGA cable, you can also utilize your existing VGA cables if desired.

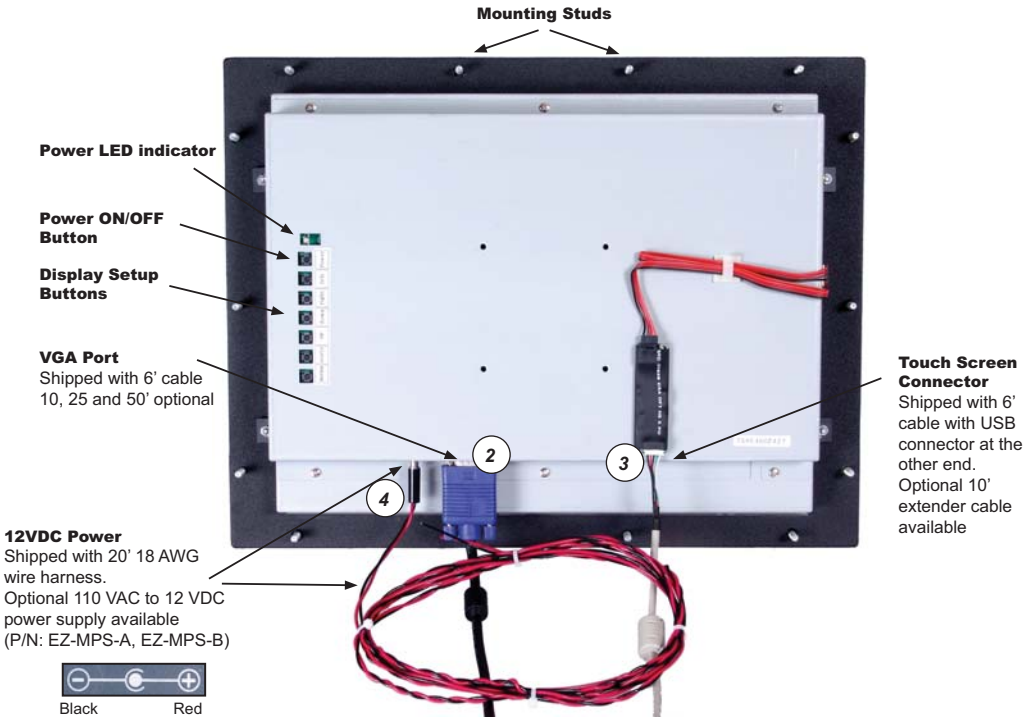
3. Connect TouchScreen communication cable to EZMonitor and your PC (for select models) (3)

Touch Screen models of EZMonitors come with a Touch Screen communication port. This port has a 5 pin connector which is used to connect to a USB port of a PC with the Touch Screen communications cable provided. Once you have connected your PC to the Touch Screen communications port of EZMonitor, you have to install Touch Screen communication drivers (included on CD-ROM). See appendix A for details on how to install and calibrate the Touch Screen for your EZMonitor

4. Apply power to EZMonitor (4)

All EZMonitors require a 12VDC power input for operation. The power input is supplied to EZMonitors via a standard power input jack as shown in the image below.

5. Calibrate your TouchScreen (for select models- Refer to appendix A for more details)

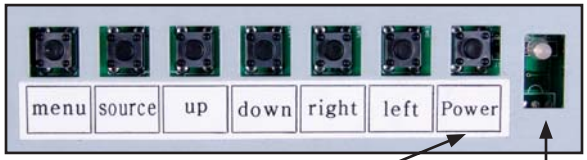


3.6 Menu Options and Screen Control

Status Indicator Light

The Status LED provides an indication of unit status. It will illuminate as GREEN when power is applied to the unit. If the LED does not light, this indicates one of the two things

1. There is NO POWER to the unit or the power supply failed
2. There is NO VGA SIGNAL to the unit and the unit is in SLEEP mode.
   - If the unit is in SLEEP mode, pressing “Power” button will turn it back ON
   - If VGA signal is applied to the unit while in SLEEP mode, it will also turn the unit ON



Power Control
External power control button on rear end

Status Indicator Light
Illuminates GREEN when power is applied to the unit.

Power Button

The power button can be used to turn the EZMonitor ON and OFF.

Menu Button

When this button is pressed, the following pop-up window will appear on your EZMonitors screen.

Using the following menus, you can adjust the following settings under each Menu for your EZMonitor.

Picture Menu

- Backlight
- Brightness
- Contrast
- H position
- V position
- Phase
- Frequency

Advanced Menu

- Sharpness
- Color Matrix
- Color Temp
- User Red
- User Green
- User Blue
- More options
    - User red c1
    - User red c2
    - User green c1
    - User green c2
    - User blue c1
    - User blue c2

Options Menu

- Osd
- Language
- Dpms
- Source scan
- Blank color
- Auto adjust

Utility Menu

- osd timeout
- factory init

UP / Down / Right / Left Button

These buttons are used for navigation and selection in a Menu once invoked.

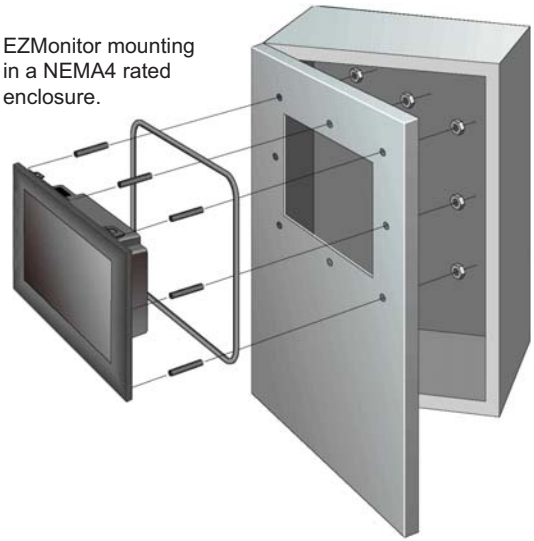
3.7 EZMonitor Mounting

EZMonitors can be mounted using stud mounting procedure as shown in the image below. In order for you mount EZMonitor in your control cabinet, you need to pay close attention to cutout dimensions of the EZMonitor for proper installation.

NOTE: *All necessary mounting hardware is provided with EZMonitors. Use the studs and nuts provided to properly secure the unit on the mounting surface.*

CAUTION! *Mount EZMonitor on a VERTICAL SURFACE only to ensure proper cooling of the unit.*

EZMonitor mounting in a NEMA4 rated enclosure.

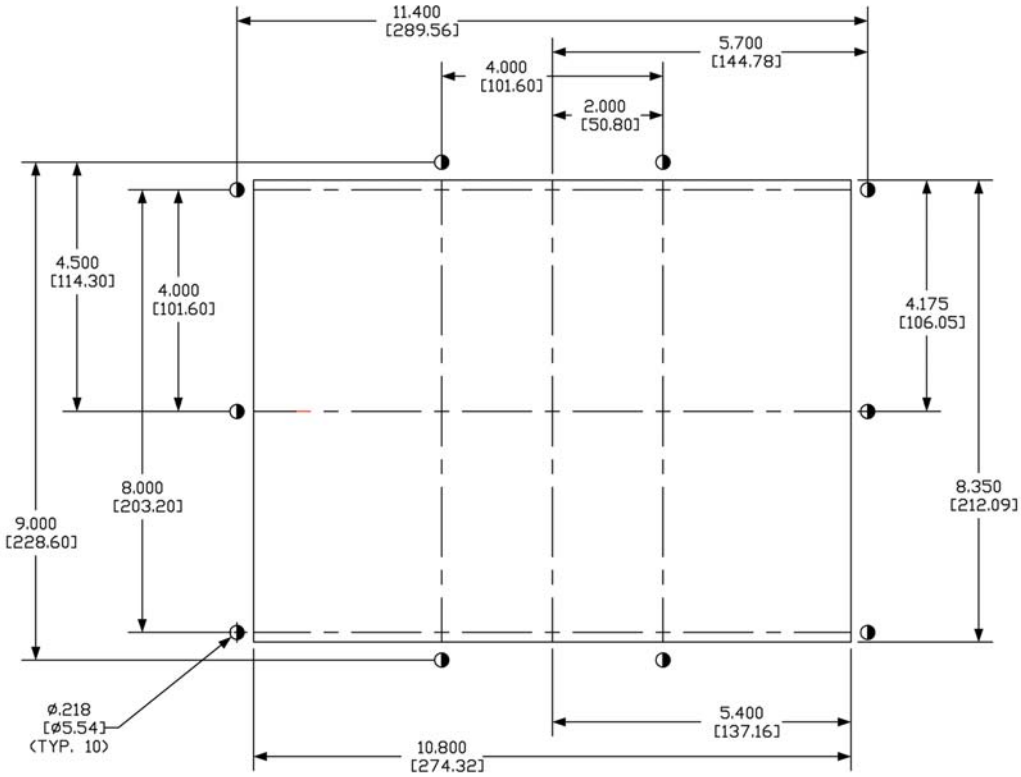


Allow 1-inch clearance between rear of panel and enclosure

Allow 4-inches for panel X-Y clearance.

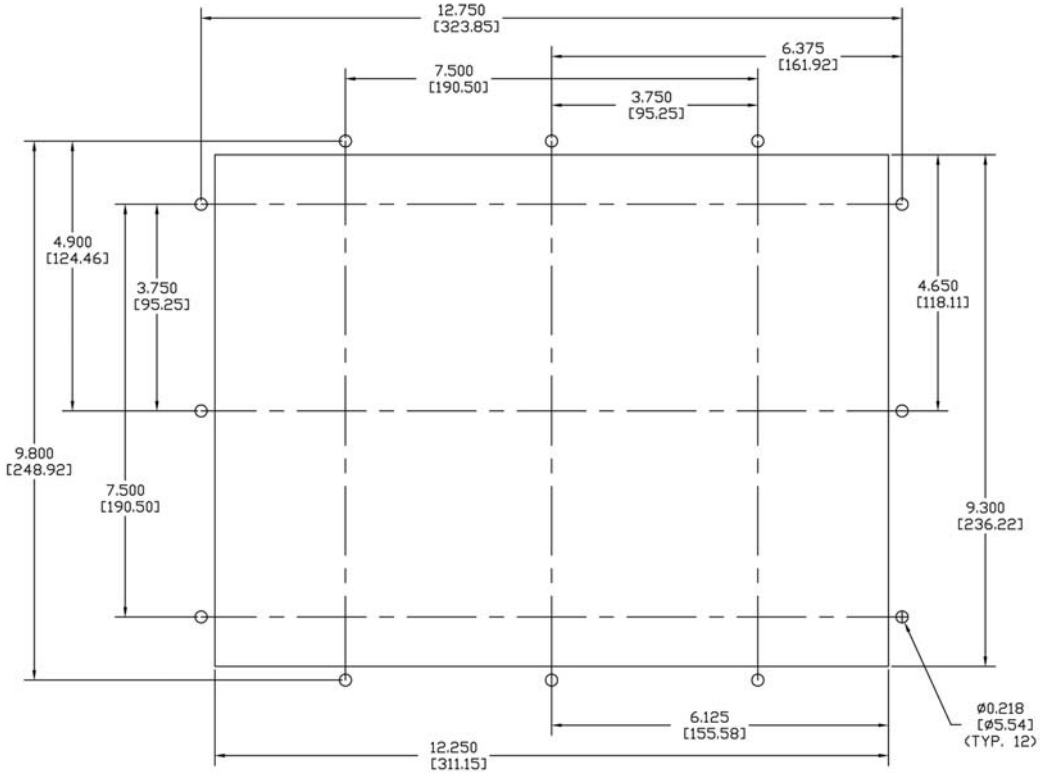
3.8 EZMonitor Cutout Dimensions

10” EZMonitor Cutout Dimensions



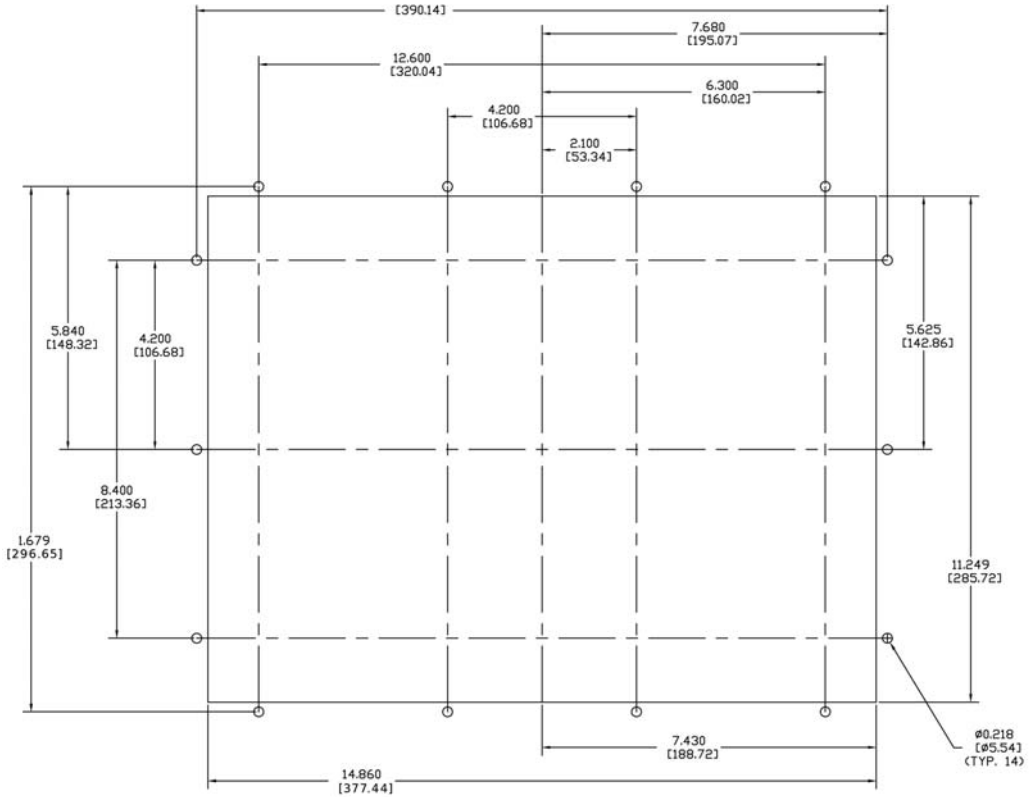
All the necessary mounting hardware is provided with the unit. Use the 10 studs and 10 nuts with captive washers to secure the unit on the mounting surface. Dimensions are provided in inches and millimeters, where millimeters appear in [ ].

12” EZMonitor Cutout Dimensions



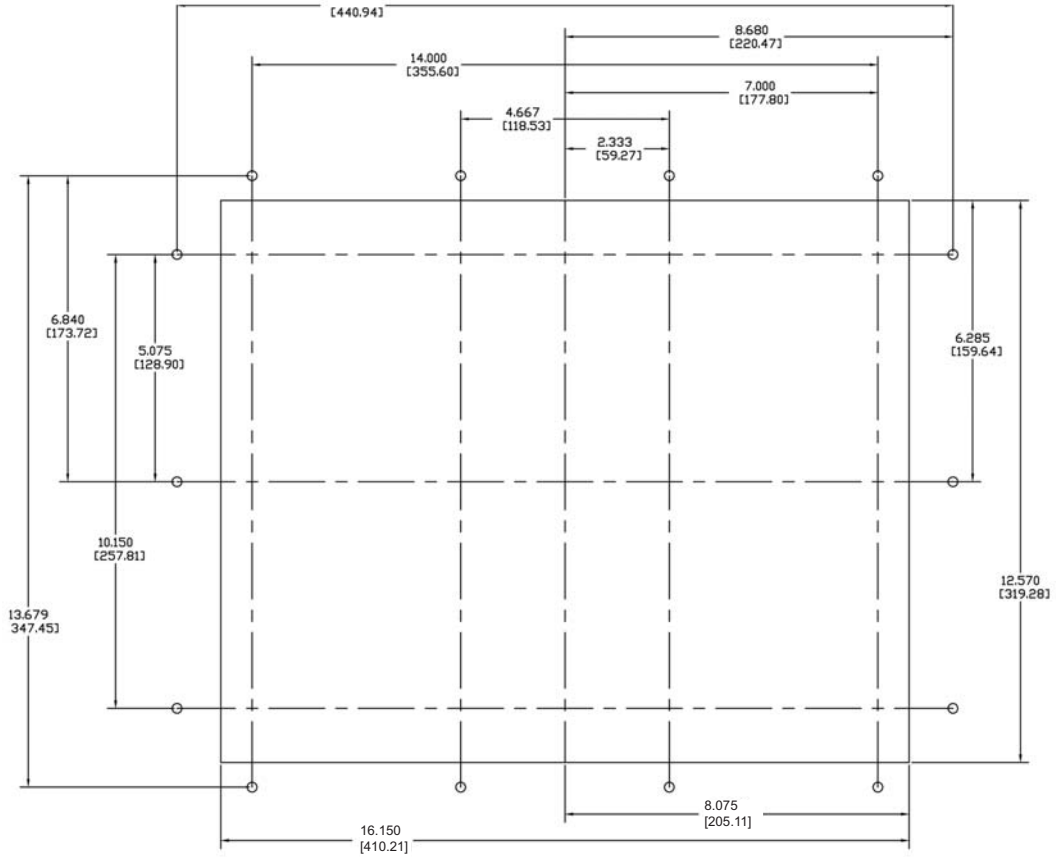
All the necessary mounting hardware is provided with the unit. Use the 12 studs and 12 nuts with captive washers to secure the unit on the mounting surface. Dimensions are provided in inches and millimeters, where millimeters appear in [ ].

15” EZMonitor Cutout Dimensions



All the necessary mounting hardware is provided with the unit. Use the 14 studs and 14 nuts with captive washers to secure the unit on the mounting surface. Dimensions are provided in inches and millimeters, where millimeters appear in [ ].

17” EZMonitor Cutout Dimensions



All the necessary mounting hardware is provided with the unit. Use the 14 studs and 14 nuts with captive washers to secure the unit on the mounting surface. Dimensions are provided in inches and millimeters, where millimeters appear in [ ].

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4

Maintenance and Troubleshooting

In This Chapter....

- Maintenance
- EZMonitor's TouchScreen Chemical Compatibility
- TouchScreen Cleaning
- Troubleshooting

4.1 Maintenance

Backlight Bulb

Generally, backlight bulb far exceeds the manufacturer's expected life. The manufacturer's expected half-life rates are provided in the table below.

EZMonitor Model #	Manufacturer's Expected Bulb Half-Life
EZ-10M	40,000 Hrs
EZ-10MT	40,000 Hrs
EZ-12M	50,000 Hrs
EZ-12MT	50,000 Hrs
EZ-15M	40,000 Hrs
EZ-15MT	40,000 Hrs
EZ-17M	50,000 Hrs
EZ-17MT	50,000 Hrs

Tip: ***Take advantage of your PC's screen saver feature to turn the monitor off when not in use. This will significantly extend the life of back light of your EZMonitor.***

Precautions

To insure the longevity and effectiveness of EZMonitors, please take note of the following precautions:

- Do not press any sharp object against the screen
- Do not strike the unit with hard objects
- Do not press the screen with excessive force
- Once the unit is mounted and power is applied to it, do not place any objects over the ventilation slots. This will result in heat buildup and may damage the unit

Standard Bezel

EZMonitor's Chemical Compatibility

The TouchScreen models of EZMonitor have a Polyester surface. The following list is provided to make you aware of the general compatibility between chemicals that may be present in your work environment and the polyster surface of the TouchScreen. Use the hat to determine those chemicals which are safe to use around your EZMonitor and those which may harm the TouchScreen of EZMonitors. This list rates the chemicals as: **E – Excellent, G – Good, F – Fair, N – Not Recommended**

Because the rating are for ideal conditions at 57 deg C, consider all factors when evaluating your application.

Chemical	Rating	Chemical	Rating
Acetone	G	Aniline	G
Auto fuel	E	Auto lubricants	E
Auto Hydraulics	E	Bromine (wet)	N
Butyl Cellosolve	E	Butyl Ether	G
Chloroform	G	Clorox	E
Coffee	E	Cupric Sulfate	E
Cyclohexanone	N	Cyclohexanol	E
Downy	E	Diethyl Ether	G
Dioctyl Phthalate	G	Ethyl Acetate	E
Ethanol	E	Ethylene Chloride	G
Fantastic	E	Formula 409	E
Grape Juice	E	Heptane	E
Hexane	E	Hydrogen Peroxide	N
Isopropyl Alcohol	E	Ketchup	E
Lemon Juice	E	MEK	F
Methylene Chloride	N	Mineral Acids (dilute)	E
Mineral Acids (strong)	G	Mr. Clean	E
Mustard	G	Naphtha	G
Phenol	N	Sodium Hydroxide (dilute)	G
Sodium Hydroxide (strong)	F	Sodium Hypochlorite	E
Spray 'N Wash	E	Tea	E
Toluene	E	Tomato Juice	E
Top Job	E	Trichloroacetic acid	F
Triethanolamine	G	Vinegar	E
Wisk	F	Xylene	E
Zinc Chloride	E		

Slim Bezel

EZMonitor's Chemical Compatibility

The models of EZMonitor without have a Polycarbonate surface. The following list is provided to make you aware of the general compatibility between chemicals that may be present in your work environment and the polyester surface of the TouchScreen. Use the hat to determine those chemicals which are safe to use around your EZMonitor and those which may harm the TouchScreen of EZMonitors. This list rates the chemicals as:
E – Excellent, G – Good, F – Fair, N – Not Recommended
Because the rating are for ideal conditions at 57 deg C, consider all factors when evaluating your application.

Chemical	Rating	Chemical	Rating
Acetaldehyde	N	Acetamide	N
Acetic Acid @ 5%	G	Acetic Acid @ 50%	G
Acetone	N	Acetonitrile	N
Acrylonitrile	N	Adipic Acid	E
Alanine	N	Allyl Alcohol	F
Alum. Hydroxide	N	Aluminum Salts	G
Amino Acids	E	Ammonia	N
Ammonium Acetate	E	Ammonium Gloclate	F
Ammonium Hydroxide @ 5%	N	Ammonium Hydroxide @30%	N
Ammonium Oxalate	E	Ammonium Salts	G
n-Amyl Acetate	N	Amyl Chloride	N
Aniline	N	Benzaldehyde	N
Benzene	N	Benzoic Acid	G
Benzyl Acetate	G	Benzyl Alcohol	G
Bromine	F	Bromobenzene	N
Bromoform	N	Butadiene	N
n-Butyl Acetate	N	n-Butyl Alcohol	F
sec-Butyl Alcohol	F	tert-Butyl Alcohol	F
Butyric Acid	N	Calcium Hydroxide	N
Calcium Hypochlorite	N	Formaldehyde @ 40%	G
Formic Acid @ 3%	G	Formic Acid @ 50%	G
Formic Acid @ 99%	F	Fuel Oil	G
Gasoline	F	Glacial Acetic Acid	N
Glycerin	E	n-Heptane	G
Hexane	N	Hydrochloric Acid @ 5%	E
Hydrochloric Acid @ 20%	F	Hydrochloric Acid @ 35%	N
Hydrofluoric Acid @ 5%	F	Hydrofluoric Acid @ 48%	N
Hydrogen Peroxide @ 5%	E	Hydrogen Peroxide @ 30%	E
Hydrogen Peroxide @ 90%	E	Isobutyl Alcohol	G
Isopropyl Acetate	N	Isopropyl Alcohol	E
Isopropyl Benzene	N	Kerosene	E
Lactic Acid @ 3%	G	Lactic Acid @ 85%	G
Methoxyethyl Oleate	N	Methyl Alcohol	F
Methyl Ethyl Ketone	N	Methyl Isobutyl Ketone	N
Methyl Propyl Ketone	N	Methylene Chloride	N
Mineral Oil	G	Nitric Acid @ 10%	G
Nitric Acid @ 50%	F	Nitric Acid @ 70%	N
Nitrobenzene	N	n-Octane	F
Orange Oil	F	Ozone	G
Carbazole	N	Carbon Disulfide	N
Carbon Tetrachloride	N	Cedarwood Oil	F
Cellosolve Acetate	N	Chlorine @ 10% in air	G
Chlorine @ 10% moist	F	Chloroacetic Acid	N
p-Chloroacetophenone	N	Chloroform	N

Chemical	Rating	Chemical	Rating
Chromic Acid @ 10%	N	Chromic Acid @ 50%	N
Cinnamon Oil	F	Citric Acid @ 10%	G
Cresol	N	Cyclohexane	G
Decalin	N	o-Dichlorobenzene	N
p-Dichlorobenzene	N	Diethyl Benzene	N
Diethyl ether	N	Diethyl Ketone	N
Diethyl Malonate	N	Diethylene Glycol	F
Diethylene Glycol Ethyl Ether	N	Dimethylformamide	N
Dimethyl Sulfoxide	N	1, 4-Dioxane	F
Dipropylene Glycol	F	Ether	N
Ethyl Acetate	N	Ethyl Alcohol	G
Ethyl Alcohol @ 40%	G	Ethyl Benzene	N
Ethyl Benzoate	N	Ethyl Butyrate	N
Ethyl Chloride Liquid	N	Ethyl Cyanoacetate	N
Ethyl Lactate	N	Ethylene Chloride	N
Ethylene Glycol	F	Ethylene Glycol Methyl Ether	N
Ethylene Oxide	N	Fluorides	E
Fluorine	F	Formaldehyde	G
Perchloric Acid	N	Perchloroethylene	N
Phenol Crystals	N	Phosphoric Acid @ 5%	E
Phosphoric Acid @ 85%	G	Pine Oil	E
Potassium Hydroxide @ 1%	N	Potassium Hydroxide conc.	N
Propane Gas	N	Propylene Glycol	F
Propylene Oxide	F	Resorcinol sat.	F
Resorcinol @ 5%	F	Salicylaldehyde	F
Salicylic Acid Powder	G	Salicylic Acid sat.	G
Salt Solutions Metallic	E	Silver Acetate	G
Silver Nitrate	E	Sodium Acetate sat.	G
Sodium Hydroxide @ 1%	N	Sodium Hydroxide @ 50%+	N
Sodium Hypochlorite @ 15%	F	Stearic Acid Crystals	G
Sulfuric Acid @ 6%	E	Sulfuric Acid @ 20%	G
Sulfuric Acid @ 60%	F	Sulfuric Acid @ 98%	N
Sulfur Dioxide Liquid	G	Sulfur Dioxide dry	G
Sulfur Salts	N	Tartaric Acid	G
Tetrahydrofuran	N	Thionyl Chloride	N
Toluene	N	Tributyl Citrate	N
Trichloroethane	N	Trichloroethylene	N
Triethylene Glycol	G	Tripropylene Glycol	G
Turpentine	N	Undecyl Alcohol	F
Urea	N	Vinylidene Chloride	N
Xylene	N	Zinc Stearate	E

TouchScreen Cleaning

EZMonitor TouchScreen has a scratch resistant coating. This adds a slight chemical barrier to the screen, but the screen's primary purpose is to protect the screen from abrasion. The TouchScreen should be cleaned when necessary with warm soapy water Only.

4.2 Troubleshooting

Problem: Unit does not power up

Action:

1. Check to confirm a 12 VDC power to EZMonitor. Make sure that correct polarity is observed as mentioned on page X
2. When power is applied to the unit, the status indicator LED should turn on GREEN.
   - If power is present to the unit but NO VGA signal is applied, the unit will go in SLEEP mode.
   - If the unit is in SLEEP mode, pressing “Power” button will turn it back ON
   - If VGA signal is applied to the unit while in SLEEP mode, it will also turn the unit ON

Problem: Unit is Blank when turned ON

Action:

1. When the unit is turned on the status indicator light should be turned on GREEN.
2. Check to confirm that the VGA cable is connected properly on both ends, EZMonitor and your PC.
3. If cables are connected properly, make sure that the PC is turned on and there is signal present in VGA cable connected to the EZMonitor.
4. Either disconnect power to EZMonitor, or turn it off using the “On/Off” push button at the back of the unit.
5. Reapply power, or turn it on using the “On/Off” push button to display the VGA signal being sent to it via the VGA cable.

Problem: The display area is not aligned / image is not centered on the screen

Action:

1. The image display setup and control buttons are located at the back of the unit.
2. Press “Menu” button which will pop-up a window on the screen of the unit.
   - Note: “Menu” function will only work when the unit is displaying an image sent over VGA port
3. Using the navigation keys “Up/Down” and “Right/left” select the appropriate settings of the EZMonitor which you wish to adjust
4. Once you have change the settings as desired, press “Menu” button twice to exit from the window and return to normal operation

Problem: TouchScreen is not working
Action:

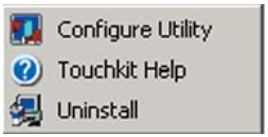
1. Check to make sure that the TouchScreen communication cable is connected properly on EZMonitor and the USB port of your computer.
2. In order to use the functionality of TouchScreen, you must install the proper drivers for the OS (operating system) running on the PC connected to EZMonitor.
3. All the TouchScreen drivers for available OS are present on the CD-ROM included with your EZMonitor.
4. Refer to Appendix A for detailed instructions on how to install TouchScreen drivers for all the OS supported by EZMonitors TouchScreen.

Problem: TouchScreen out of Calibration
Action:

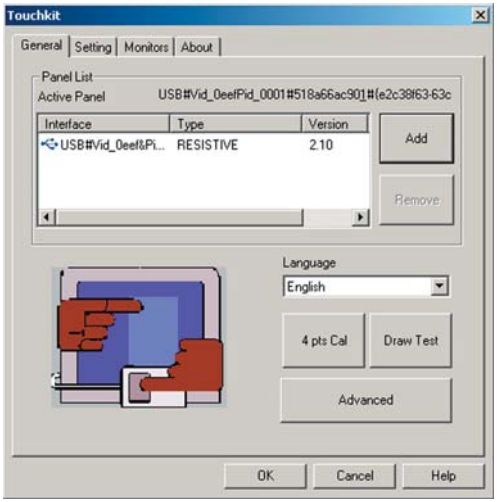
1. Once You have installed TouchScreen drivers on the PC connected to EZMonitor, you must calibrate the TouchScreen using “Touchkit” configuration utility.
2. “Touchkit” configuration utility is installed on your PC when you install the TouchScreen drivers for your OS.

   - Note: If Touchkit is not installed on your PC, install it using the CD-ROM provided for the appropriate OS being used on your PC

3. Run Touchkit “configure” utility



4. Click on “4 pts Cal” button to perform a calibration of your TouchScreen.



5. The following screen will appear which will prompt you to touch the “X” mark (blinking) until it stops blinking. You will be prompted 4 times to calibrate the screen on all the four corners of the TouchScreen as shown below

- Tip: Use a stylus to accurately touch at the center of the “X” for proper calibration.

6. Once you have calibrated your TouchScreen using the utility, you should be able to use your TouchScreen accurately.

   - Note: The calibration is specific to the PC EZMonitor is connected to. If the PC connected to EZMonitor is changed, you will have to re-calibrate your TouchScreen for proper operation

   - Note: The calibration shown in this example is specific to Win XP OS. For correct OS calibration instructions, refer to Appendix A for more details.

Still need Help?

You have two additional sources for more information other than this manual.

Visit our website at www.EZAutomation.net
Our web site contains all of this information, any new feature releases, technical support, plus much more.

Call our **Technical Support Group** at 1-877-774-EASY or FAX us at 1-877-775-EASY.

If you have any questions that you can't find an answer to, give us a call from Monday through Friday, 6 a.m. to 12 a.m. CST at the number above and we will be glad to assist you.

Warranty Repairs

If your EZMonitor is under warranty, **contact EZAutomation @ 1-877-774-EASY.**

Out of Warranty Repairs

If your EZMonitor is out of warranty, **contact EZAutomation's Customer Service Department for an evaluation of repair costs @ 1-877-774-EASY**. You can then decide whether it is more economical to proceed with factory repairs or purchase a new panel.

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A

Appendix A

EZMonitor Touchscreen Driver Installation and Calibration - Windows XP

TouchKit is software, which contains drivers of the touch panel controllers for the specified communication connectors, RS232, PS/2 and USB, and the other two utilities.

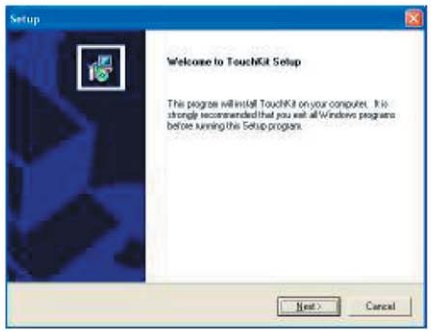
The two utilities are as follows:

- **Touch Tray support**
  This is utility for emulating the right and left button of mouse through controlling touch panel. Users can toggle between right or left mouse buttons by this utility.

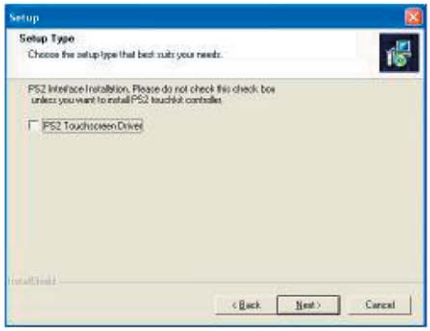
- **Configuration support**
  The calibration and draw test of touch panel are done by this utility. Besides, users can add or remove for new RS-232 or PS/2 touch panel devices.

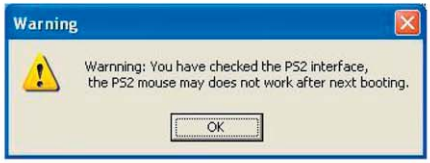
Follow these steps to install ***TouchKit.***

1. Put the ***TouchKit*** CD to CD-ROM.
2. Open the **Win2000_XP** directory.
3. Double click the **Setup.exe**, then windows starts to run the installation program. Notice that do not plug the USB controller on the system before the installation has been finished.
4. Just click **[Next >]** button to continue installation.



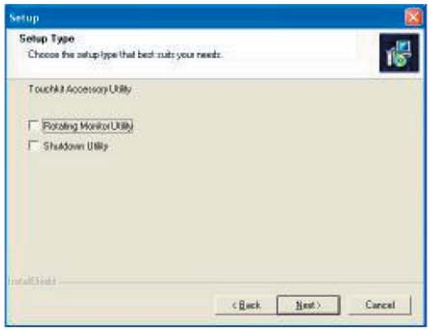
5. Check the check box if PS/2 touch controller is to be installed. The default setting is unchecked. Then Press **[Next >]** to continue installation.



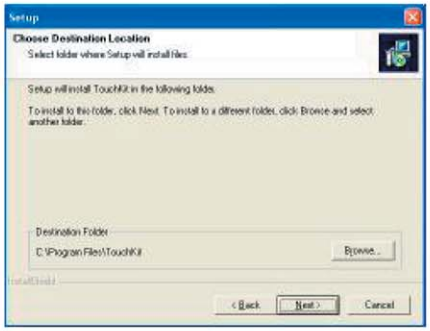


System will give you a warning, if user checks the PS2AUX check box,

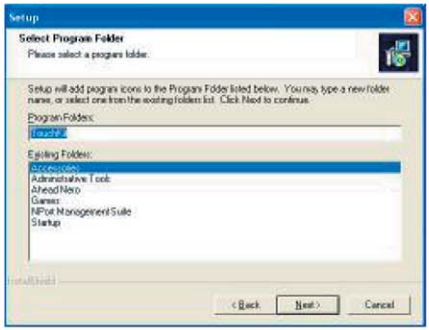
6. Choose the setup type that best suits your needs. There are two ***TouchKit*** accessory utilities for choosing, **Rotation Monitor Utility** and **Shutdown Utility**. Users can install the utility they want by checking the box. Then Press **[Next >]** to continue installation.



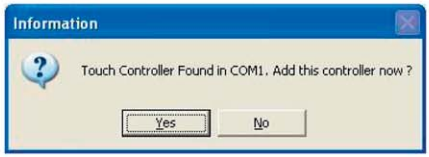
7. Select the appropriate folder where set-up files will be installed. Then press **[Next >]** to continue installation.



8. Then type in the name of program folder for ***TouchKit*** or press **[Next >]** to continue. There will be a default name for it.

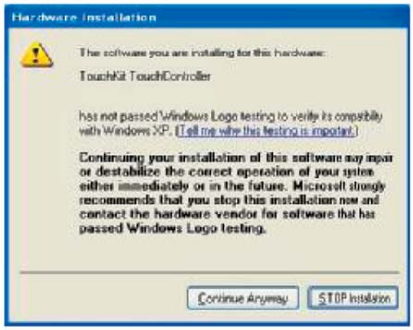


During driver installation, the setup program will scan COM port for RS232 ***Touchkit*** controller. Once the controller was scanned, the setup program will display a dialog as

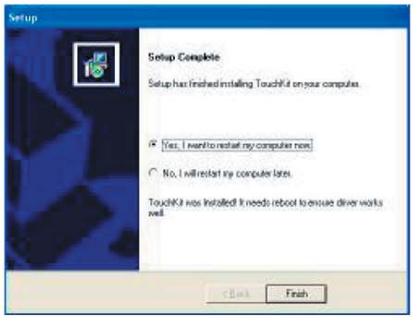


Click Yes to add the controller on the specified COM port automatically.

During installation, the ***Touchkit*** controller driver will be installed automatically. Windows XP will prompt a warning message before driver certificated. Now, Press **[Continue >]** to continue installation.

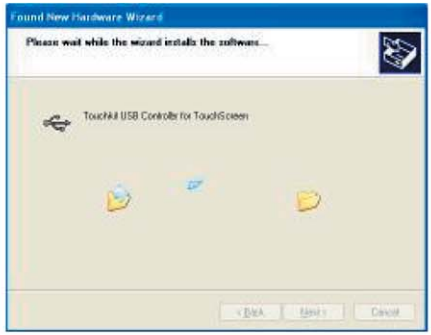


9. Windows is copying files to disk and the setup is complete. After finish the installation, if PS/2 touch controller is installed, it needs to reboot the computer.



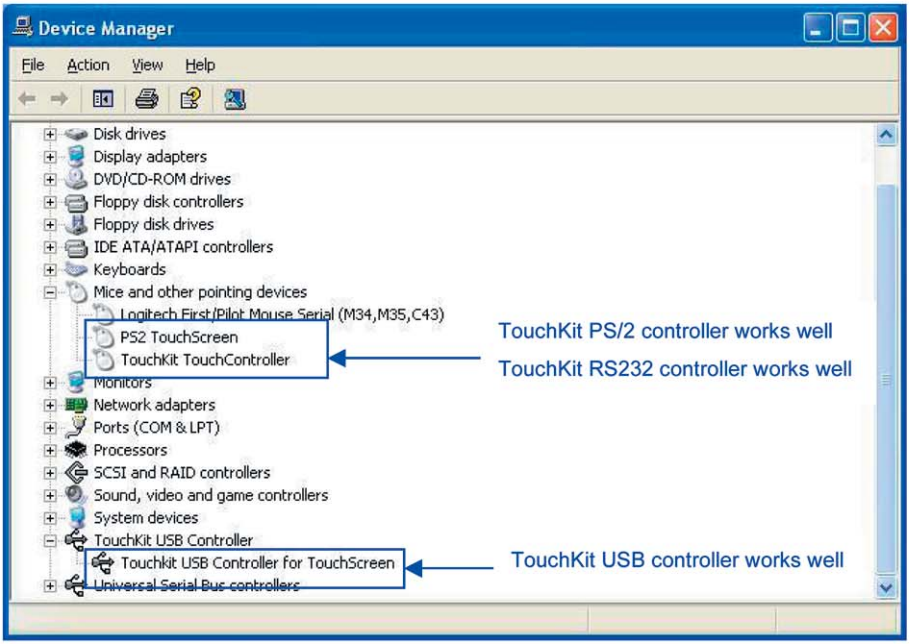
10. After ***Touchkit*** installation, Unplug and plug the USB touch controller into the computer, Hardware wizard finds this hardware, Press **[Next >]**,

It will search the proper driver for the ***Touchkit*** controller device and install it automatically.

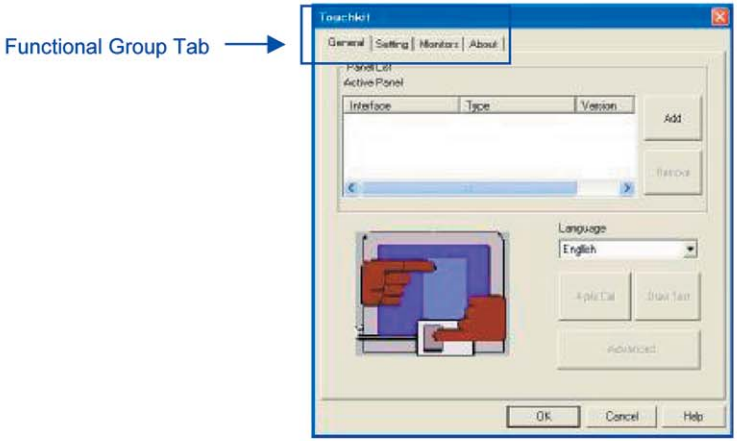


After the driver is installed, Press **[Finish >]** to complete the USB device installation.

11. Users can check the situation of controllers in Device Manager. If the controller is set up well, there will be messages as the following picture.



There are four property pages in ***TouchKit*** utility, and they are **General**, **Setting**, **Monitors** and **About**. Each property page contains different functions for users to do the adjustments. Therefore, users can easily manage all the ***TouchKit*** controllers through ***TouchKit*** Utility.

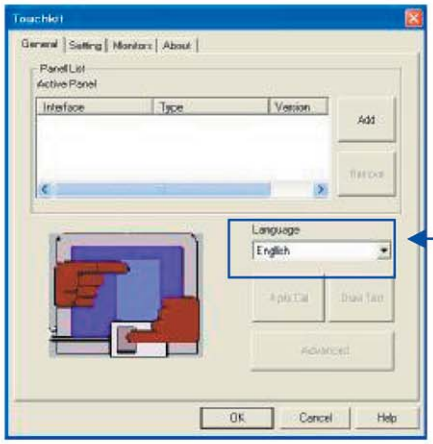


General

General property page contains the functions of **language selection**, **devices add/ remove**, **4 points calibration**, **Draw test** and **advanced**.

<Language>

TouchKit supports multi-language user interface. Users could select native language that is compatible to operation system support. For example, if the operation system is a traditional Chinese version, user could see the normal display words under the traditional Chinese and English mode. There are nine different languages, **English**, **Traditional Chinese**, **Simplified Chinese**, **French**, **Spanish**, **German**, **Japanese, Italian** and **Korean**, supported in this feature of ***TouchKit***.

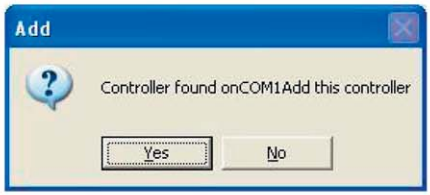


Note to select the compatible language first.

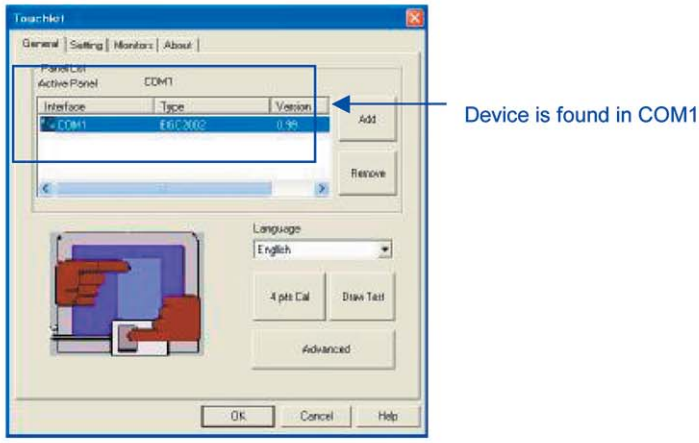
Select the compatible language first or user may not see the normal display of each button.

<Add> / <Remove>

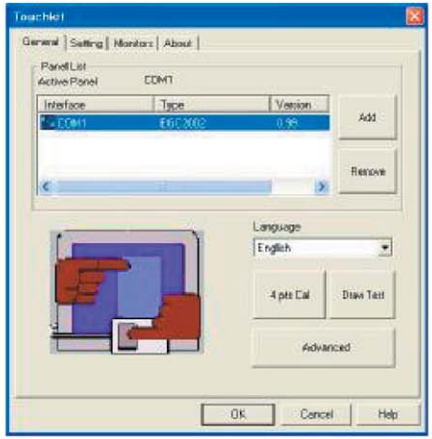
Please check the touch panel devices (including its controller) are equipped well, then click **[Add]** button to add all of those RS-232 and PS/2 components to the **Panel List** dialogue box.



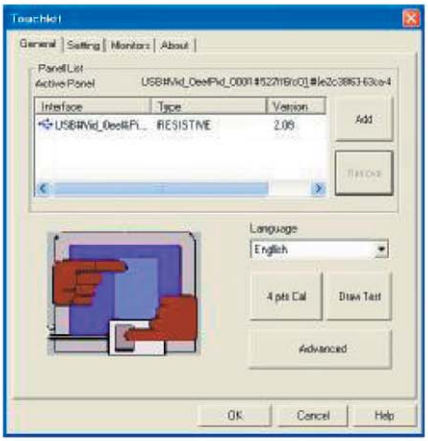
There is one devices found. Press **[Yes]** to continue.



The controller is displayed on the Panel List box. users can get the information of interface, type, firmware version and baud rate for each controller.
Select one device after added more than one device at the panel list window.
The one selected will activate the panel, and remember to do the calibration before starting to use touch panel.



But, for hot-swapping USB touch controller, it will be added automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB touch controller automatically as soon as it was unplugged.



There are three buttons, **[4pts Cal] [Draw Test] [Advanced]**, at the lower section of the **General** property page.

<4pts Cal>

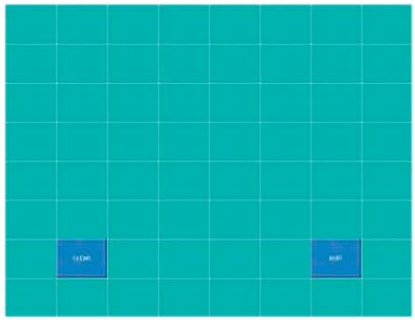
Correct 4 point locations on screen with the panel. Press **[4 pts Cal]**, screen displays as follows.

Touch the blinking symbol on panel until beep or stop blinking.

<Draw Test>

Test the drawing position related to the display screen on panel.

Click on the **[Draw Test]** button. There will be a squared blue display showing.

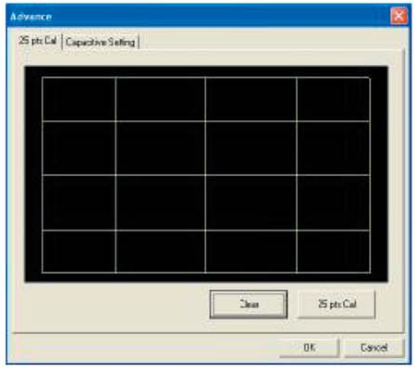


In drawing test window, users can click **[Clear]** button to clear the window. Also, User can click **[Quit]** or press mouse right button to quit from the drawing test.

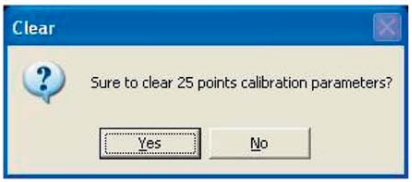
If **no touch action** happen within minutes, it will quit from the draw test window automatically. In drawing test window, users can verify the panel linearity, calibration capability, and drawing line quality.

<Advanced>

Touchkit provide more accuracy 25 points calibration for touch sensor. In addition, ***Touchkit*** provide controller setting for capacitive touch sensor. If the capacitive controller is selected, a capacitive setting property page appears on the advanced sheet. In general case, it does not need to do 25 points calibration other then bad linearity sensor.



Press **[Clear]** to clear the previous calibration records.

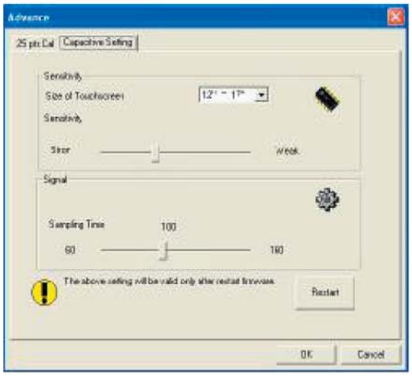


Press **[Yes]** to clear previous records.The record will become default record.

Press **[25ptCal]** to do 25 points calibration. Correct 25 point locations on screen with the panel.

Touch the blinking symbol on panel until beep or stop blinking.
After the calibration, the new record will overwrite the old one.

If the selected controller is capacitive type, an extra property page for capacitive setting adjustment shown as below:



Please select property size of capacitive screen first, and press **[Restart]**

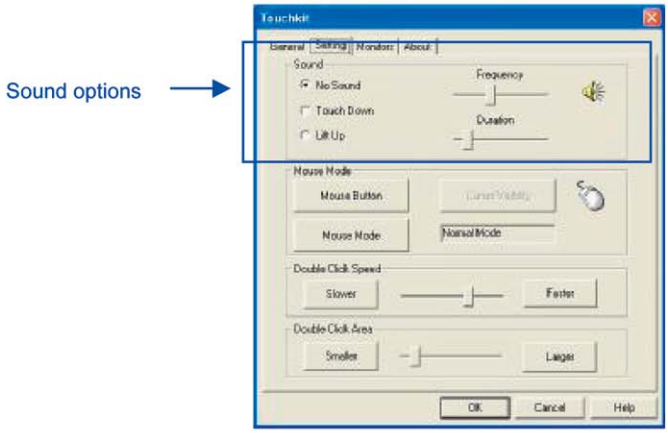
The capacitive controller will restart, and do not touch the screen before the warning message disappears

Warming: Do not adjust the sensitive and sampling time without RD help

Setting

There are three functional groups in **Setting** property page, and at the upper section of the property page is **sound option**; at the middle section is **Mouse Mode;** and at the lower section is **Double Click Adjustment**.

The **Sound** options provide user the click feedback while touching the panel. Select preferred option first.



<No Sound>

Users could choose to make no sound while using the touch panel.

<Touch Down>

The system will make a sound while touching the panel.

<Lift Up>

The system will not make any sound until finger leaves the touch panel.

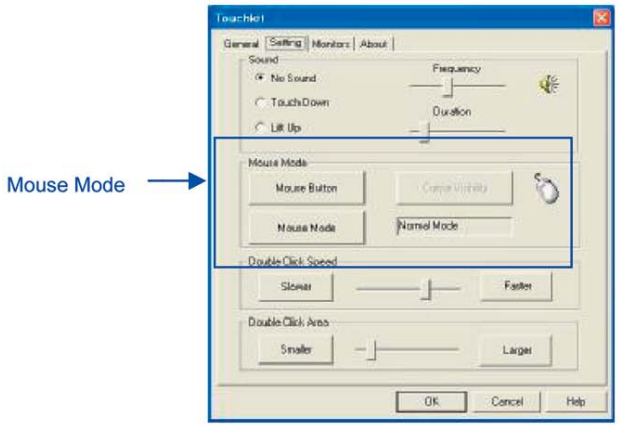
<Frequency>

Sound frequency, drag the cursor from left to right is low to high.

<Duration>

Sound duration, drag the cursor from left to right is short to long.

The **Mouse Mode** provides user different operating options. They are as follows:



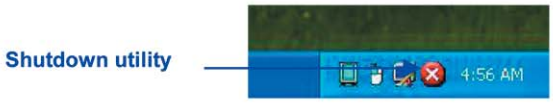
<Mouse Button>

Click it to **show / hide *Touch Tray*** on the right bottom corner of the desktop. The touch panel system starts with the computer booting, and a mouse icon shows in the taskbar.

Users can choose show or hide ***Touch Tray*** from the mouse icon in the taskbar. Just right click the mouse icon, there will be a pop-up box. Using the **Button** to choose show or hide, and if user wants to disable the touch panel system, choose **Exit.**

Change **right / left** button by clicking the upper small rectangular box of ***Touch Tray***. Blue area expresses what button has been selected.

<Shutdown utility>



Click on shutdown utility in the task bar

Shutdown utility dialog

There are five modes in shutdown utility for users convenience.
[Standby] to enter standby mode that saves power consumption.
[Shutdown] to turn off PC.
[Reboot] to restart PC.
[Cancel] to escape from the Shutdown utility dialog.
[Exit] to disable the Shutdown utility.

Please notice that Windows NT doesn't support this function.

<Mouse Mode>

There are three kinds of mouse mode user could choose,

[Normal Mode]

It provides all the mouse functions, including the dragging function.

[Click on Touch]

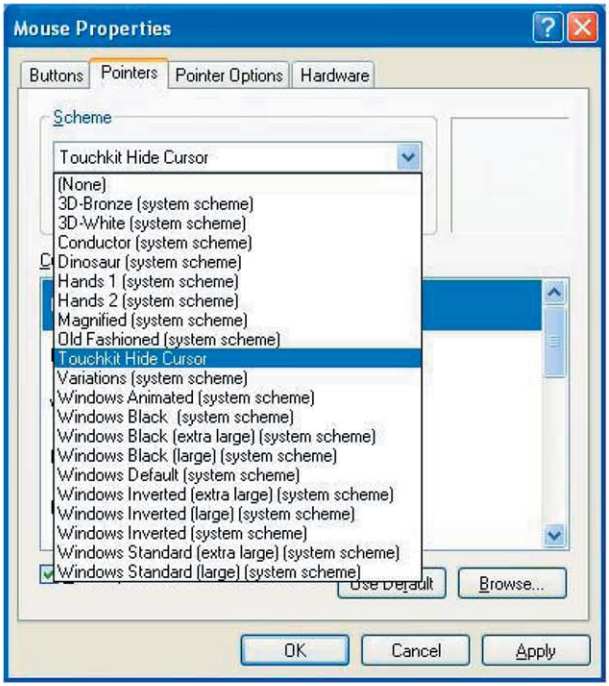
Click action is executed as soon as user touches the panel.

[Click on Release]

Click action will not be executed until finger leaves the panel.

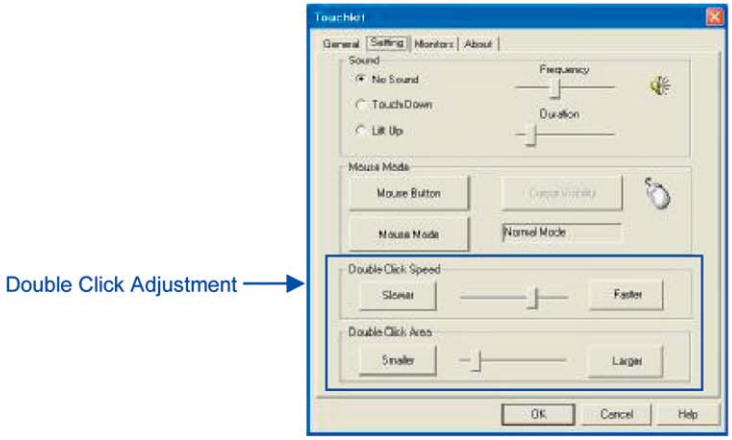
<Cursor Visibility>

Cursor visibility function provides user to hide the cursor in the display. Please go to **Start / Control Panel / Mouse / Pointers / Scheme**, and choose **TouchKit Hide Cursor**. Press **[Apply]** to make setting change, and press **[OK]** to escape the property page.



If user wants to cancel the function of TouchKit Hide Cursor, do the steps again and choose the other scheme.

The **Double Click adjustment** provides user to set up the tolerance while double clicking. They are as follows:



<Double Click Speed>

Double Click Speed is the double click response time for Windows system. User can adjust the proper double click for easy double click by touch panel.

<Double Click Area>

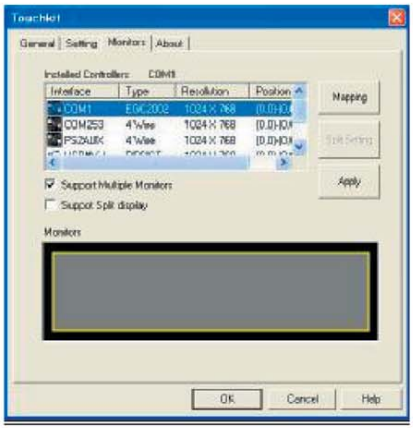
Each one touch has its own touch tolerance once someone may not fix in one point. So if user set the Double Click Area to **<Smaller>**, the panel will be very sensitive about micro-move while user wants to fix on a point. If user set it to **<Larger>**, it tolerates the larger touch point movement while user want to point at a fixed position.

Monitors

There are two functions in this property page, and they are **Multiple Monitors** and **Split Monitor**. Such a trendy and yet innovated design provides viewing pleasures, viewing flexibility and convenience to the users.

<Multiple Monitors>

To configure the mapping relationship between the monitors and the touch panels, select the monitor page as below.

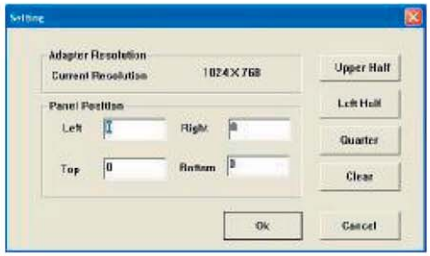


Set the check box (Use Multiple Monitors) to enable multiple monitors mapping. Uncheck this box will disable multiple-monitor configuration, and all of the touch panel controllers will be mapped to the primary monitor. The gray shadow area is the monitor mapped the selected controller/panel. The button **[Mapping]** is used to find the mapping relationships between the monitors and touch panel controllers. Press the **[Mapping]**, the software will guide the user to touch the corresponding monitor to obtain the mapping relationship.

After finish monitor mapping, Press **[Apply]** to apply the mapping relation.

<Split Monitors>

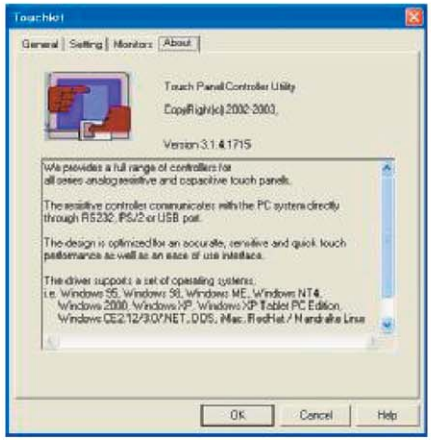
To use the Split Monitor function, users need to select which controller you want to launch this function, then check the Multiple Monitors box and Split Monitor at the same time as showing as the follow picture. Press the **[Split Monitor]** button to set up the activate area.



It shows the current resolution of display and users can set up the activate area by inputting the value by yourself or use the default button **[Upper Half]**, **[Left Half]** or **[Quarter]**. The default value of panel resolution should be full screen as Left: **0** , Right: **0**, Top: **0** and Bottom: **0**.

About

Information about ***TouchKit***.



TouchKit driver package for Windows 98/ME/2000/XP provides two easiest ways to rotate the touch panel while the display is rotated.

- Rotating display by way of nVidia or ATI driver
- Rotating display by way of Pivot.

4.1 Rotating display by way of nVidia or ATI driver

1. After activating the rotation of nVidia or ATI driver, there will be one blinking symbol show as the following picture. Touch near the blinking symbol until stop blinking, and the touch panel will rotate itself.

One touch blinking symbol adjustment

2. However, 180˚ rotation of touch panel can not be done in one step, users need to rotate 90˚ twice.

4.2 Rotating display by way of Pivot

There are two ways to rotate the display by way of Pivot.

- Rotating display by way of Pivot hotkey or function menu
- Rotating display by way of RotTray icon provided by ***TouchKit***.

< Rotating display by way of Pivot hotkey or function menu >

1. To rotate the display, please install Pivot pro 6.05 first. Then reboot PC to activate Pivot.

2. There will be a pivot icon in the task bar. User can click on it, and user can choose four angles: 0°, 90°, 180°, 270° to rotate the display.

3. After choosing the angle users want to rotate, there will be one blinking symbol showing as the following picture. Touch this blinking symbol until stop blinking, and the touch panel will rotate itself.

One touch blinking symbol adjustment

4. However 180 °rotation of touch panel can not be done in one step, users need to rotate 90° twice.

< Rotating display by way of RotTray icon provided by TouchKit>

1. To rotate the display, please install Pivot pro 6.05 first. Then reboot PC to activate Pivot.

2. Users will see ***RotTray*** icon in the task bar.

RotTray icon

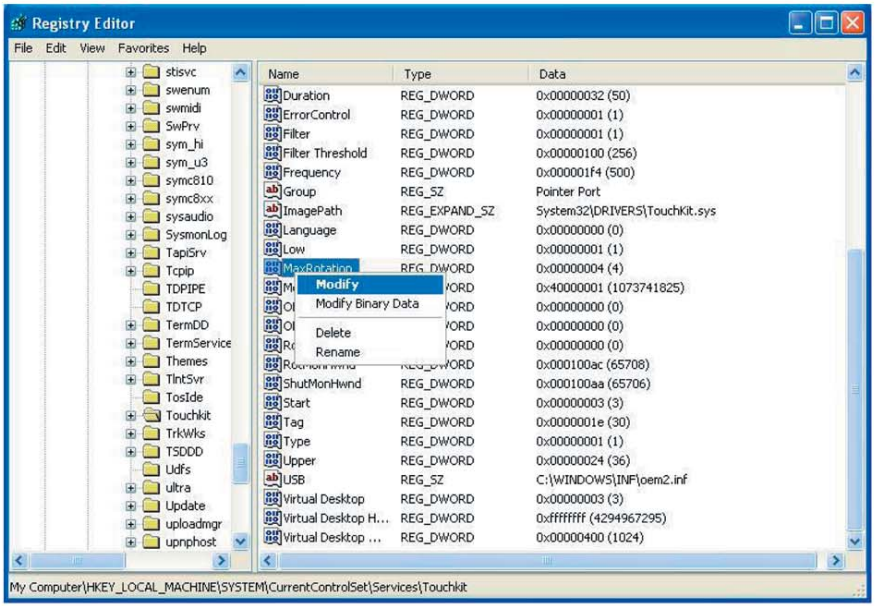
3. Clicking on ***RotTray***, it will call Pivot to rotate the display and touch panel 90 ° at the same time. Clicking it again, it will rotate another 90 °to 180 °. Every click on ***RotTray***, display will rotate clockwise. Recalibration and one symbol adjustment won't be necessary anymore.

4. However this version of ***RotTray*** is design for Pivot pro 6.05. If users want to use older version of Pivot, like Pivot 5.1, users need to amend the value of windows registry. The next step is an example for setting Pivot 5.1 on Win98.

5. Go to **Start / Run**, and execute regedit.

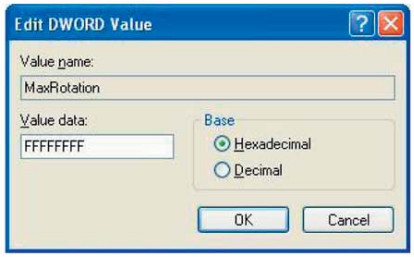
Press **[OK]** to execute

6. **For Windows 95/98/ME** OS, The Registry Editor will show as the follow picture. Then go to HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VxD\TKIT.
   For Windows 2000/ XP, please go to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Touchkit
   Right click on the **MaxRotation**, and choose Modify.



Right click on MaxRotation to Modify Value data

7. Choosing the Hexadecimal Base, and replace the value data “4”(default) with “FFFFFFFF”.



Pressing **[OK]** to confirm.

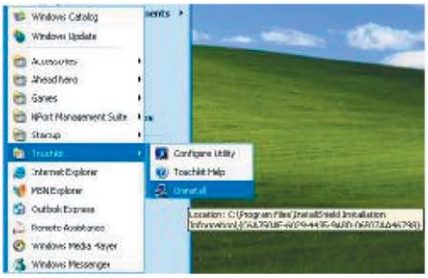
8. Here bellow are the value data for different version of Pivot:

Version of Pivot	Available Angle	Value Data
Pivot pro 6.05	0˚,90˚,180˚270˚	4 (default)
Pivot 5.1	0˚,-90˚	FFFFFFFF
Other Version	0˚, 90˚	2

Chapter 5. Uninstalling TouchKit

Follow these steps to uninstall ***TouchKit.***

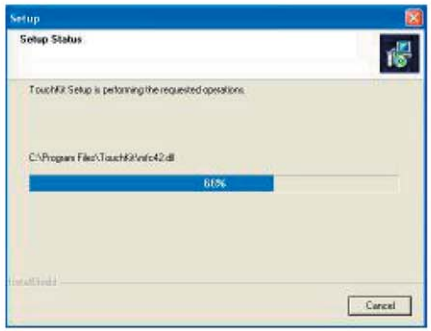
1. Go to **Start / All programs / TouchKit / Uninstall**, and execute it.



2. ***TouchKit*** setup dialog appears, and prepares to uninstall.

3. Confirm dialog, press **[OK]** to start un-installation; **[Cancel]** to cancel un-installation.

4. Start to uninstall ***TouchKit***.



If user does not want to uninstall ***TouchKit*** at this moment, press **[Cancel]** to terminate the uninstall process.

1. ***TouchKit*** driver will not be unloaded until system re-boot. Press **[Yes]** to re-boot immediately or **[No]** to re-boot later.

B

Appendix B

EZMonitor Touchscreen Driver Installation and Calibration - Windows NT

TouchKit is software, which contains drivers of the touch panel controllers for the specified communication connectors, RS232, PS/2 and USB, and the other two utilities:

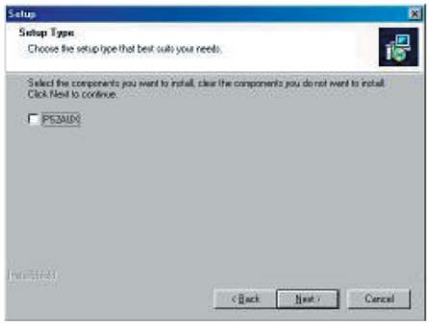
- **Touch Tray support**
  This is utility for emulating the right and left button of mouse through controlling touch panel. Users can toggle between right or left mouse buttons by this utility.

- **Configuration support**
  The calibration and draw test of touch panel are done by this utility. Besides, users can add or remove for new RS-232, PS/2 or USB touch panel devices.

Follow these steps to install ***TouchKit.***

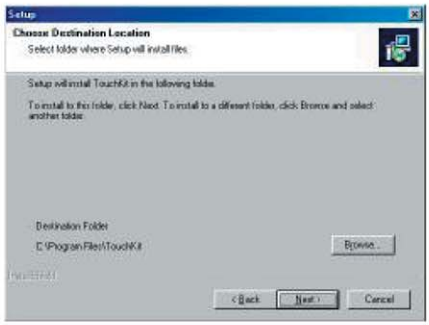
1. Put the ***TouchKit*** CD to CD-ROM.
2. Change directory to **WinNT4**
3. Double click the **Setup.exe**, then windows starts to run the installation program.
4. Just click **[Next >]** button to continue installation.

5. Then check the check box if PS/2 touch controller is to be installed. The default is unchecked. Then Press **[Next >]** to continue installation.

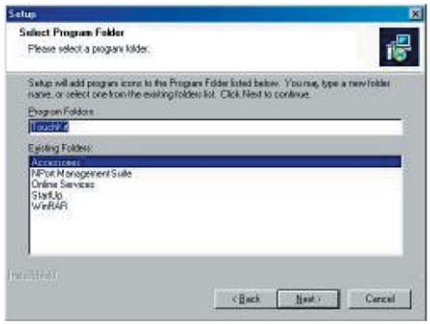


System will give you a warning, if user checks the PS2AUX check box,

6. Select the appropriate folder where set-up files will be installed. Then Press **[Next >]** to continue installation.



7. Then type in the name of program folder for ***TouchKit*** or press **[Next >]** to continue. There will be a default name for it.

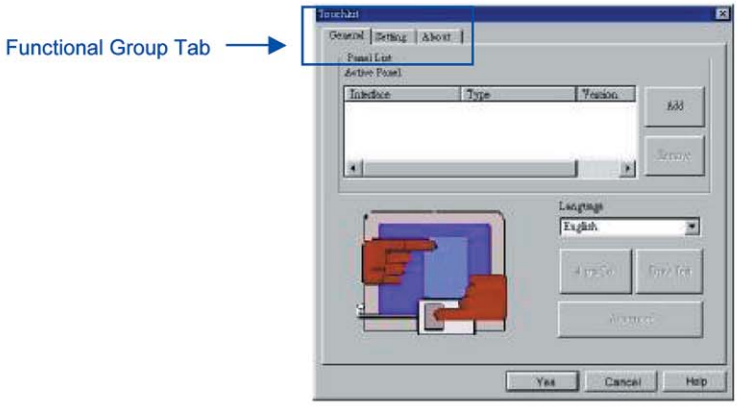


During driver installation, the setup program will scan COM port for RS232 ***Touchkit*** controller. Once the controller was scanned, the setup program will display a dialog as

Click Yes to add the controller on the specified COM port automatically.

8. Windows is copying files to disk and the setup is complete. It will request re-boot computer. Press **[Yes >]** to re-boot immediately or **[No >]** to re-boot later. The installation will not be finished until system re-boot.

There are three property pages in ***TouchKit*** utility, and they are **General**, **Setting** and **About**. Each property page contains different functions for users to do the adjustments. Therefore, users can easily manage all the ***TouchKit*** controllers through ***TouchKit*** Utility.

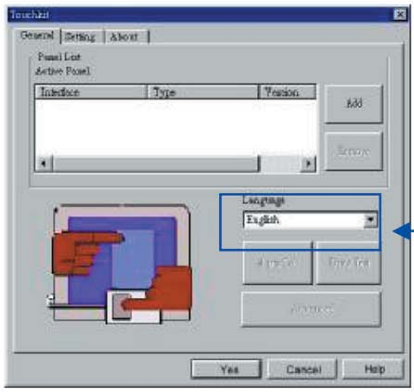


General

General property page contains the functions of **language selection**, **devices add/ remove**, **4 points calibration**, **Draw test** and **advanced**.

<Language>

TouchKit supports multi-language user interface. Users could select native language that is compatible to operation system support. For example, if the operation system is a traditional Chinese version, user could see the normal display words under the traditional Chinese and English mode. There are nine different languages, **English**, **Traditional Chinese**, **Simplified Chinese**, **French**, **Spanish**, **German**, **Japanese, Italian** and **Korean**, supported in this feature of ***TouchKit***.



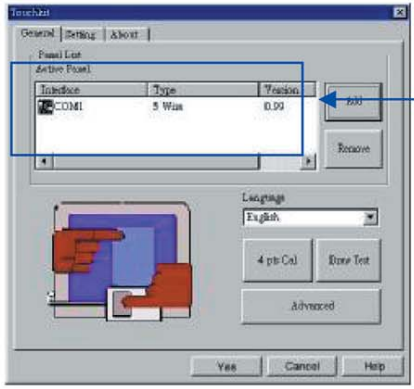
Note to select the compatible language first.

Select the compatible language first or user may not see the normal display of each button.

<Add> / <Remove>

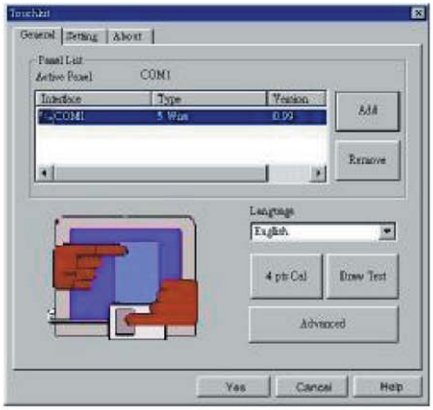
Please check the touch panel devices (including its controller) are equipped well, then click **[Add]** button to add all of those RS-232 and PS/2 components to the **Panel List** dialogue box.

There is one devices found. Press **[Yes]** to continue.



Device is found in COM1

The controller is displayed on the Panel List box. users can get the information of interface, type, firmware version and baud rate for each controller.
Select one device after added more than one device at the panel list window.
The one selected will activate the panel, and remember to do the calibration before starting to use touch panel.



There are three buttons, **[4pts Cal] [Draw Test] [Advanced]**, at the lower section of the **General** property page.

<4pts Cal>

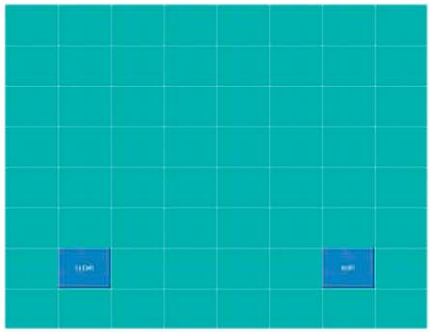
Correct 4 point locations on screen with the panel. Press **[4 pts Cal]**, screen displays as follows.

Touch the blinking symbol on panel until beep or stop blinking.

<Draw Test>

Test the drawing position related to the display screen on panel.

Click on the **[Draw Test]** button. There will be a squared blue display showing.

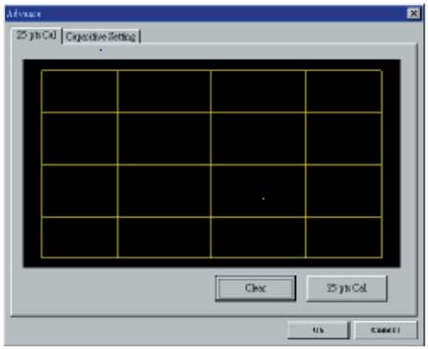


In drawing test window, users can click **[Clear]** button to clear the window. Also, User can click **[Quit]** or press mouse right button to quit from the drawing test.

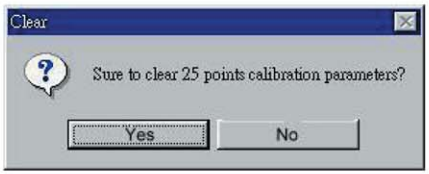
If **no touch action** happen within minutes, it will quit from the draw test window automatically. In drawing test window, users can verify the panel linearity, calibration capability, and drawing line quality.

<Advanced>

Touchkit provide more accuracy 25 points calibration for touch sensor. In addition, ***Touchkit*** provide controller setting for capacitive touch sensor. If the capacitive controller is selected, a capacitive setting property page appears on the advanced sheet. In general case, it does not need to do 25 points calibration other then bad linearity sensor.



Press **[Clear]** to clear the previous calibration records.

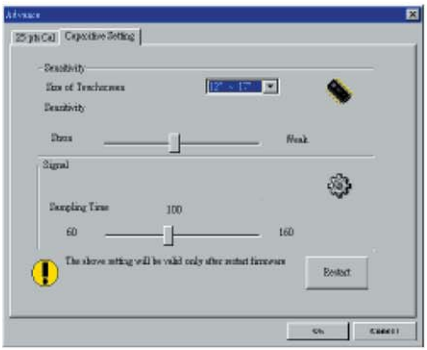


Press **[Yes]** to clear previous records.The record will become default record.

Press **[25ptCal]** to do 25 points calibration. Correct 25 point locations on screen with the panel.

Touch the blinking symbol on panel until beep or stop blinking.
After the calibration, the new record will overwrite the old one.

If the selected controller is capacitive type, an extra property page for capacitive setting adjustment shown as below:



Please select property size of capacitive screen first, and press **[Restart]**

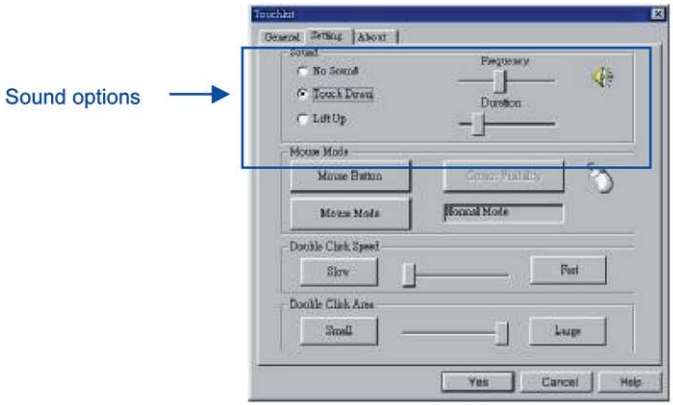
The capacitive controller will restart, and do not touch the screen before the warning message disappears

Warming: Do not adjust the sensitive and sampling time without RD help

Setting

There are three functional groups in **Setting** property page, and at the upper section of the property page is **sound option**; at the middle section is **Mouse Mode;** and at the lower section is **Double Click Adjustment**.

The **Sound** options provide user the click feedback while touching the panel.
Select preferred option first.



<No Sound>

Users could choose to make no sound while using the touch panel.

<Touch Down>

The system will make a sound while touching the panel.

<Lift Up>

The system will not make any sound until finger leaves the touch panel.

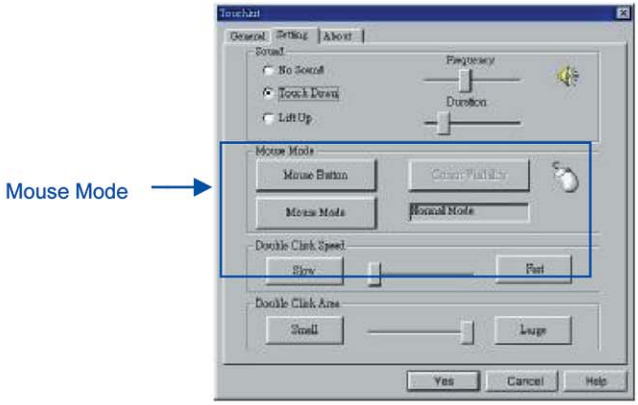
<Frequency>

Sound frequency, drag the cursor from left to right is low to high.

<Duration>

Sound duration, drag the cursor from left to right is short to long.

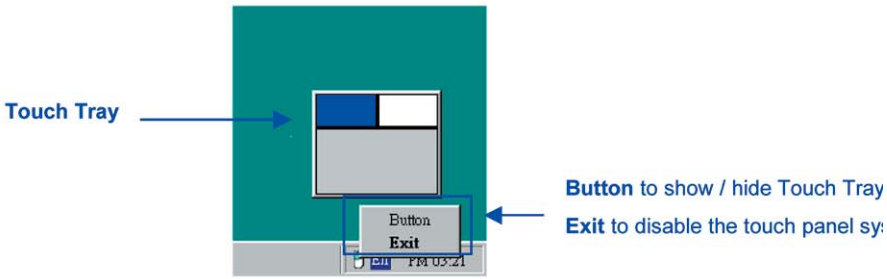
The **Mouse Mode** provides user different operating options. They are as follows:



<Mouse Button>

Click it to **show / hide *Touch Tray*** on the right bottom corner of the desktop. The touch panel system starts with the computer booting, and a mouse icon shows in the taskbar.

Users can choose show or hide ***Touch Tray*** from the mouse icon in the taskbar. Just right click the mouse icon, there will be a pop-up box. Using the **Button** to choose show or hide, and if user wants to disable the touch panel system, choose **Exit.**



Change **right / left** button by clicking the upper small rectangular box of ***Touch Tray***. Blue area expresses what button has been selected.

<Mouse Mode>

There are three kinds of mouse mode user could choose,

[Normal Mode]

It provides all the mouse functions, including the dragging function.

[Click on Touch]

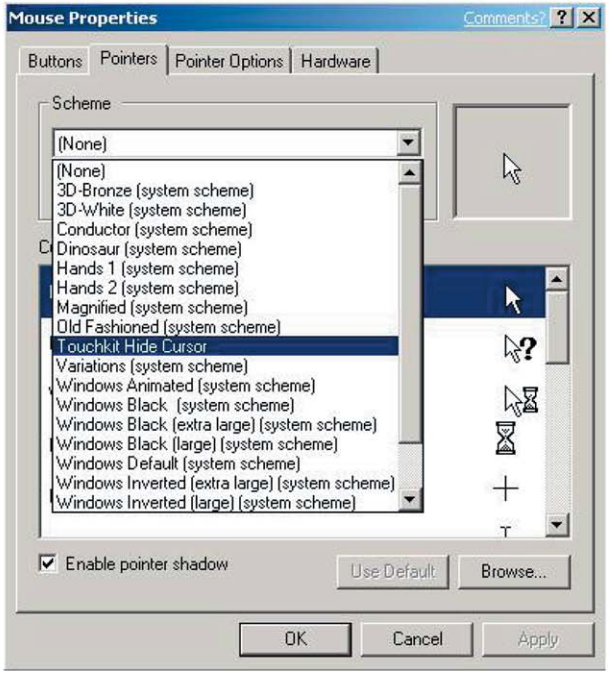
Click action is executed as soon as user touches the panel.

[Click on Release]

Click action will not be executed until finger leaves the panel.

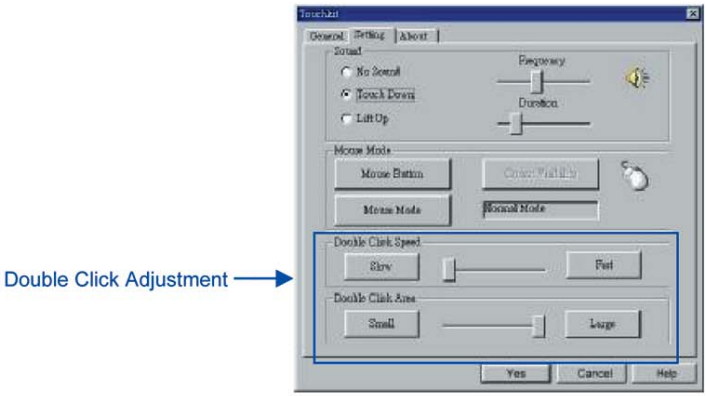
<Cursor Visibility>

Cursor visibility function provides user to hide the cursor in the display. Please go to **Start / Control Panel / Mouse / Pointers / Scheme**, and choose **TouchKit Hide Cursor**. Press **[Apply]** to make setting change, and press **[OK]** to escape the property page.



If user wants to cancel the function of TouchKit Hide Cursor, do the steps again and choose the other scheme.

The **Double Click adjustment** provides user to set up the tolerance while double clicking. They are as follows:



<Double Click Speed>

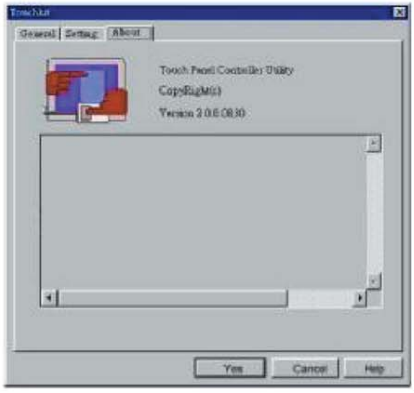
Double Click Speed is the double click response time for Windows system. User can adjust the proper double click for easy double click by touch panel.

<Double Click Area>

Each one touch has its own touch tolerance once someone may not fix in one point. So if user set the Double Click Area to **<Smaller>**, the panel will be very sensitive about micro-move while user wants to fix on a point. If user set it to **<Larger>**, it tolerates the larger touch point movement while user want to point at a fixed position.

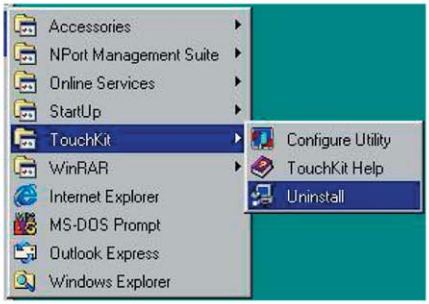
About

Information about ***TouchKit***.



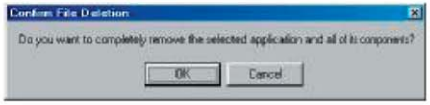
Follow these steps to uninstall ***TouchKit.***

1. Go to **Start / Programs / TouchKit / Uninstall**, and execute it.

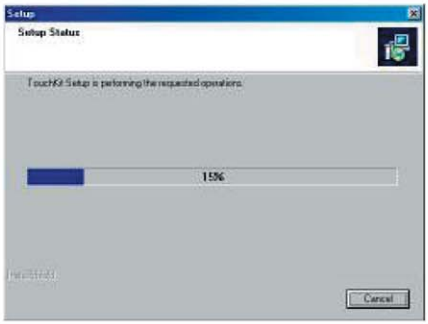


2. ***TouchKit*** setup dialog appears, and prepares to uninstall.

3. Confirm dialog, press **[OK]** to start un-installation; **[Cancel]** to cancel un-installation.

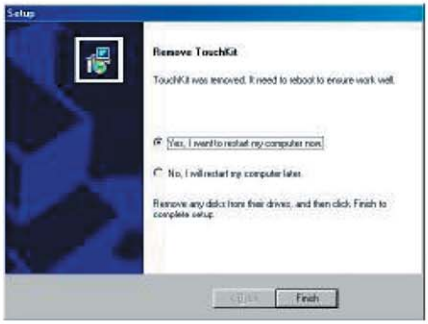


4. Start to uninstall ***TouchKit***.



If user does not want to uninstall ***TouchKit*** at this moment, press **[Cancel]** to terminate the uninstall process.

5. ***TouchKit*** will not be removed until system re-boot. Press **[Yes]** to re-boot immediately or **[No]** to re-boot later.



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C

Appendix C

EZMonitor Touchscreen Driver Installation and Calibration - Windows CE

2.1 for Windows CE2.12/3.0

TouchKit is software, which contains drivers, configuration and right button utilities of the touch panel controllers for RS232 and USB on x86 CPU and Windows CE operation system.

The two utilities are as follows:

- **Configuration support**
  The calibration and draw test of touch panel are done by this support.

- **Right button support**
  This is utility for emulating the right and left button of mouse through controlling touch panel. Users can toggle between right or left mouse buttons by this utility.

There are totally five files in the ***TouchKit*** for Windows CE directory.
Follow these steps to install ***TouchKit*** for Windows CE.

TouchKit.dll	- driver
Touch32ex.dll	- specific dynamic linking library
TouchTray.exe	- right mouse support
TouchKit.exe	- Configuration Utility
TouchKit.reg	- information that will be added to registry

1. Make sure that Windows CE has the driver of serial ports.
2. While building Windows CE, users have to assign **TouchKit.dll, Touch32ex.dll, TouchTry.exe and Touchkit.exe** to appropriate directory.
3. **Note: TouchTray.exe** is the file of the Right Mouse Utility. It has to be started with computer booting. So, put this file to appropriate directory to satisfy this specific request.
4. Add some registry value as the content of **TouchKit.reg**.
5. Now, build Windows CE with this touch panel driver and utilities.

Now, users can boot this Windows CE version on specific device. The right mouse button utility will be emulated while computer booting and the touch panel driver is also ready.

2.2 for Windows CE.NET (for version 4.0, 4.1& 4.2)

TouchKit is software, which contains drivers and configuration utilities of the touch panel controllers for RS232 and USB on x86 CPU and Windows CE operation system. There are two driver package version, and they are as follow:

- Use CE.NET bundle calibration utility
- Use TouchKit dedicated configuration utility, just like that for CE.3.0

USB interface driver installation With CE.NET bundle calibration utility:

File list:

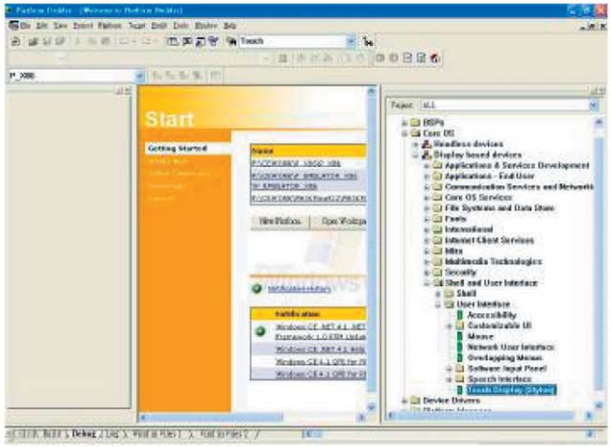
USBPort.dll - USB Touch Screen Driver
Touchp.dll - USB Touch Screen Driver
Calibration.exe - provide a program of calibration (Programer could choose the path while building the image of CE platform. This program is not necessary for CE .NET, you could use it or not as you wish)

Notes:

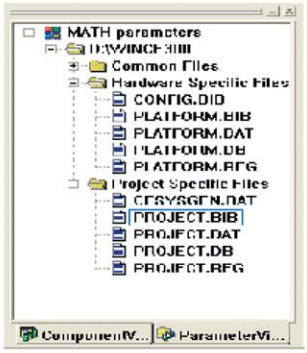
Select the UHCI or OHCI USB Host Controller driver into your platform, which supported by the target device. And check the USB mouse can go well at the same port

Select the **Touch Display[stylus]** into your platform. This can find in:
"**Catalog\Core OS\Display based devices\Shell and User Interface\Touch Display[Stylus]**".

Select the **Mouse** into your platform. This can find in:
"**Catalog\Core OS\Display based devices\Shell and User Interface\Mouse**"



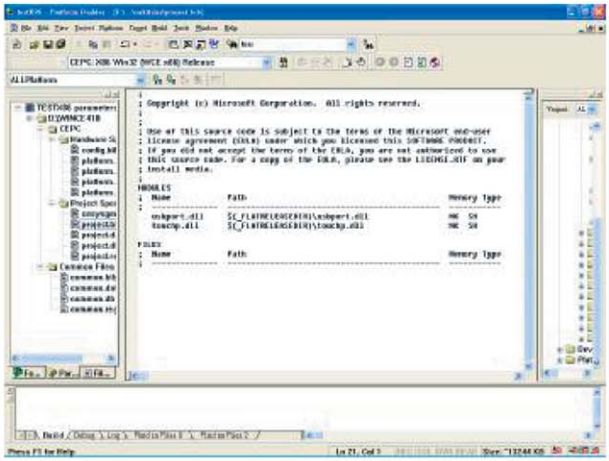
1. Open the directory within your platform directory Ex:"**$(_WINCEROOT)\PUBLIC\TouchKit\RelDir\CEPC_X86Release**" And Copy these two files to this directory.
2. Launch platform builder and open your platform workspace
3. Edit the **PROJECT.BIB** in the Parameter View of Platform Builder.



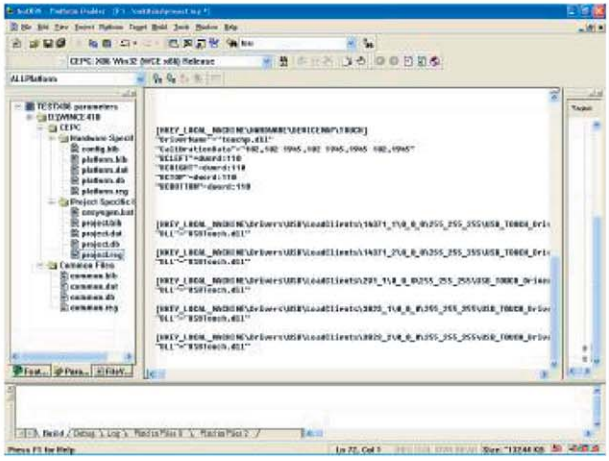
Add these two lines in MODULES:

usbport.dll $(_FLATRELEASEDIR)\usbport.dll NK SH

touchp.dll $(_FLATRELEASEDIR)\touchp.dll NK SH



4. Edit the **PROJECT.REG** in the Parameter View of Platform Builder.



Add these lines for registry.

[HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\TOUCH]

"DriverName"="Touchp.dll"

"CalibrationData"="102,102 1945,102 1945,1945 102,1945"

"BCLEFT"=dword:64

"BCRIGHT"=dword:64

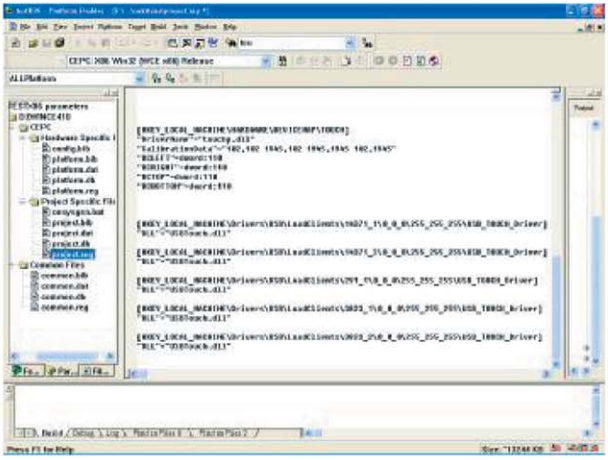
"BCTOP"=dword:64

"BCBOTTOM"=dword:64

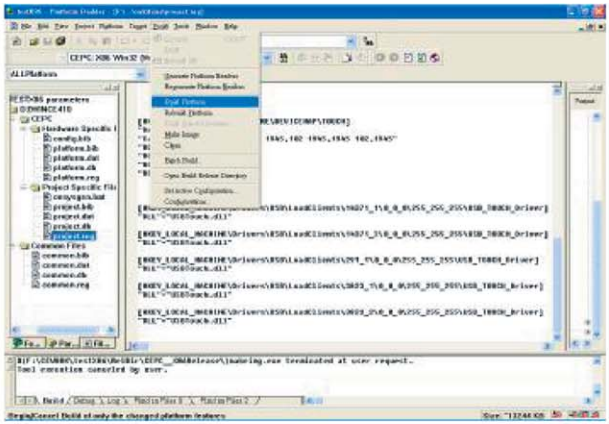
Then copy the following sentences to the **PROJECT.REG**.

[HKEY_LOCAL_MACHINE\Drivers\USB\LoadClients\14371_1\0_0_0\255_255_255\USB_TOUCH_Driver]
"DLL"="USBPort.dll"
[HKEY_LOCAL_MACHINE\Drivers\USB\LoadClients\14371_2\0_0_0\255_255_255\USB_TOUCH_Driver]
"DLL"="USBPort.dll"
[HKEY_LOCAL_MACHINE\Drivers\USB\LoadClients\291_1\0_0_0\255_255_255\USB_TOUCH_Driver]
"DLL"="USBPort.dll"
[HKEY_LOCAL_MACHINE\Drivers\USB\LoadClients\3823_1\0_0_0\255_255_255\USB_TOUCH_Driver]
"DLL"="USBPort.dll"

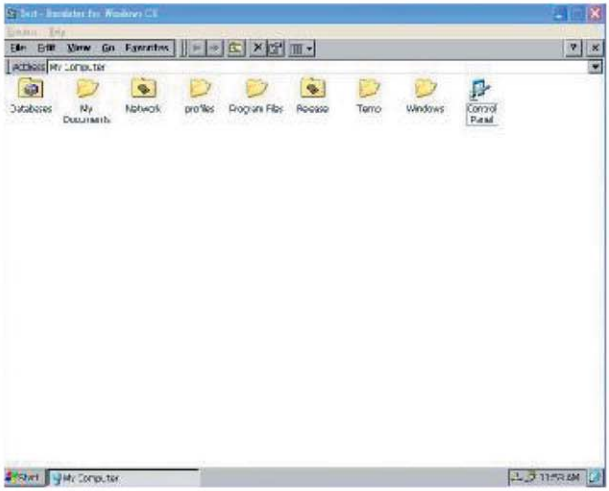
[HKEY_LOCAL_MACHINE\Drivers\USB\LoadClients\3823_2\0_0_0\255_255_255\USB_TOUCH_Driver]
"DLL"="USBPort.dll"



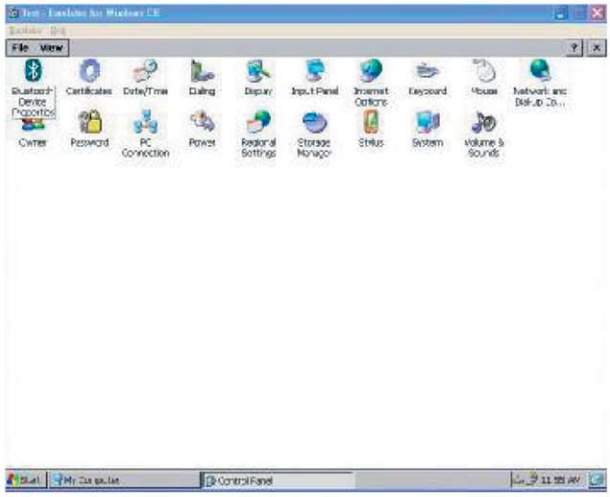
5. Build Platform **(use Build Platform, not Rebuild)**, then load the image and reboot it.



6. After building the image of CE.NET and load it to hardware platform. Users can use the stylus to do the calibration, which can be found in the control panel.



Double click on **[Control Panel]**



Choose the **[Stylus]**

The calibration window shows

7. If you want to keep the calibration data after WINCE reboot, please write **WINCE REGISTRY** to FLASH or other storages on target.

RS232 interface installation with CE.NET bundle calibration utility:

File list:

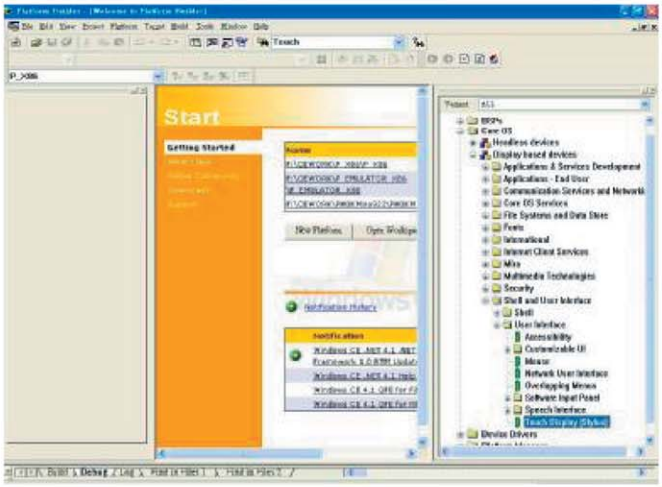
Touchp.dll - RS232 Touch Screen Driver

Calibration.exe - provide a program of calibration (Programer could choose the path of it while building the image of CE platform. This program is not necessary for CE .NET, you could use it or not as you wish)

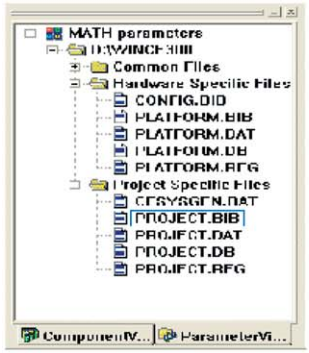
Notes:

Select the **Touch Display[stylus]** into your platform. This can find in: **"Catalog\Core OS\Display based devices\Shell and User Interface\Touch Display[Stylus]"**.

Select the **Mouse** into your platform. This can find in: **"Catalog\Core OS\Display based devices\Shell and User Interface\Mouse"**

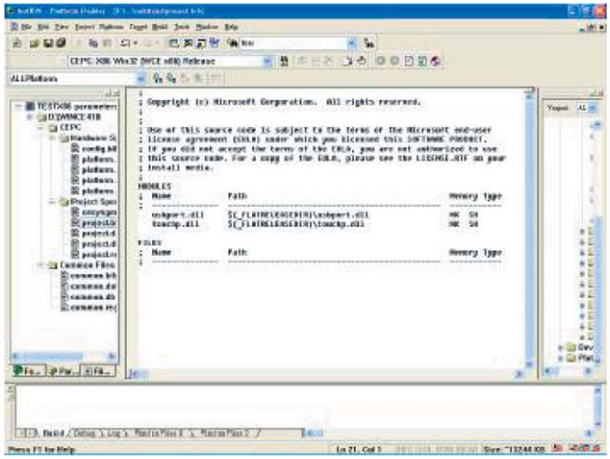


1. Open the directory within your platform directory Ex:**"$(_WINCEROOT)\PUBLIC\TouchKit\RelDir\CEPC_X86Release"** And Copy this file to this directory.
2. Launch platform builder and open your platform workspace
3. Edit the **PROJECT.BIB** in the Parameter View of Platform Builder.

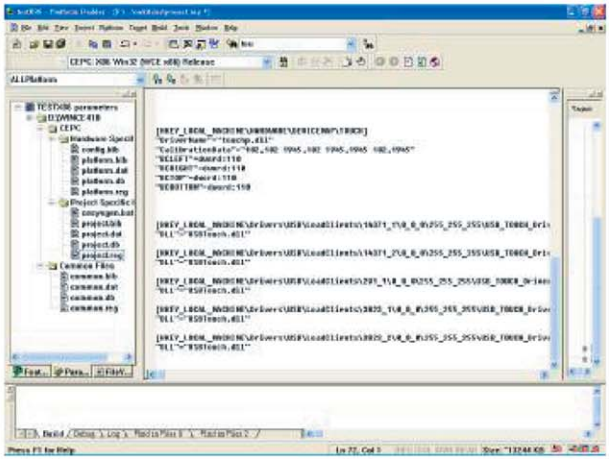


Add the line in MODULES as below:

touchp.dll $(_FLATRELEASEDIR)\touchp.dll NK SH



4. Edit the **PROJECT.REG** in the Parameter View of Platform Builder.



Add these lines for registry.

[HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\TOUCH]

"DriverName"="Touchp.dll"

"CalibrationData"="102,102 1945,102 1945,1945 102,1945"

"COMM"="COM1:"

"BCLEFT"=dword:64

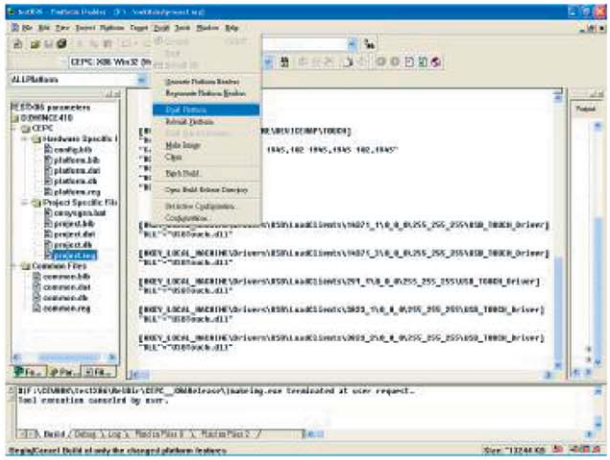
"BCRIGHT"=dword:64

"BCTOP"=dword:64

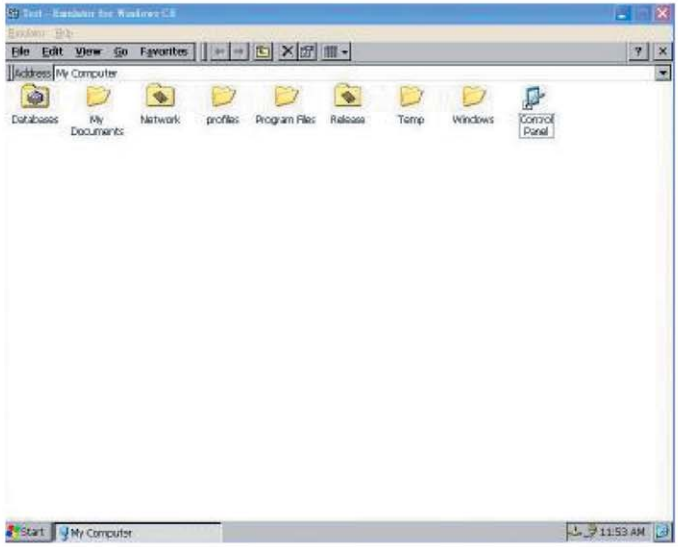
"BCBOTTOM"=dword:64

5. The setting of COMM is the COM you want to use, and users can setup it in the upper registry.

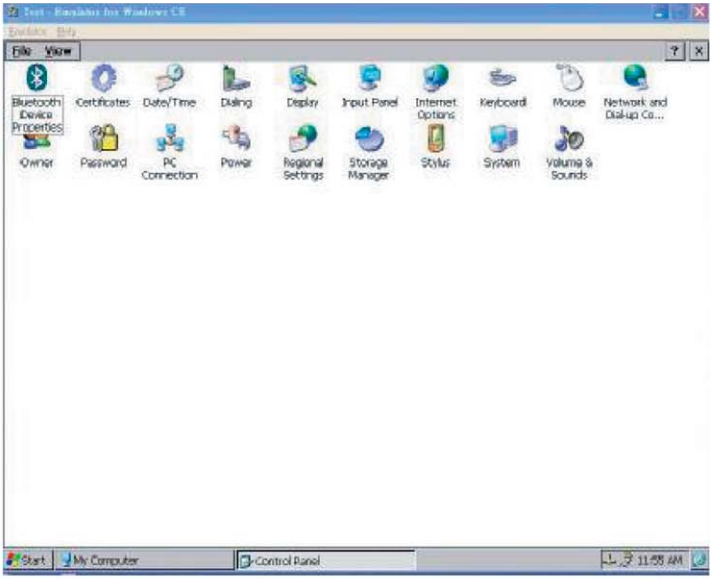
6. Build Platform **(use Build Platform, not Rebuild)**, then load the image and reboot it.



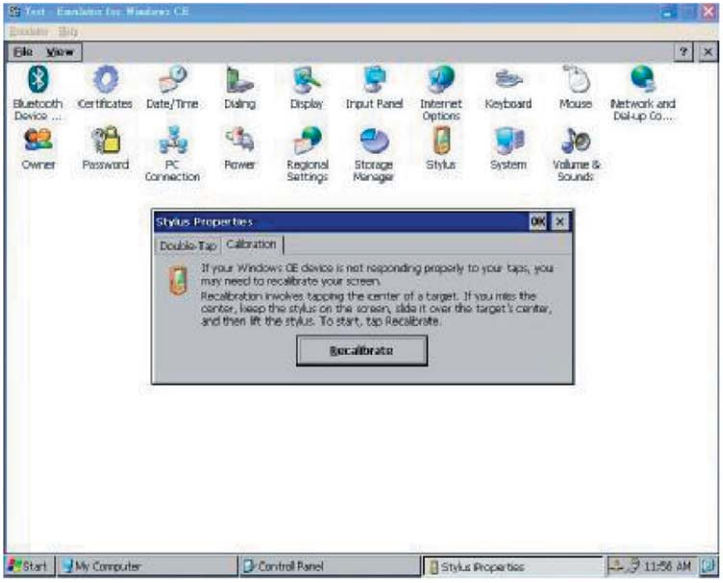
7. After building the image of CE.NET and load to hardware platform. Users can use the stylus to do the calibration, which can be found in the control panel.



Double click on **[Control Panel]**



Choose the **[Stylus]**



The Recalibration window shows

8. If you want to keep the calibration data after WINCE reboot,
   please write **WINCE REGISTRY** to FLASH or other storages on target.

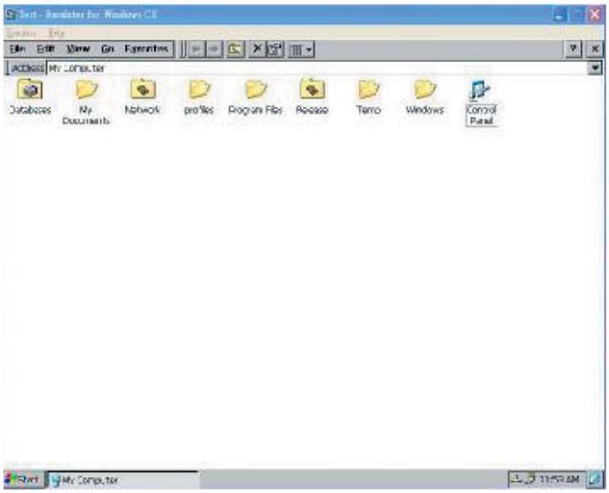
Note:

USB or RS232 installation driver with TouchKit dedicated calibration utility, just like that for CE.3.0:

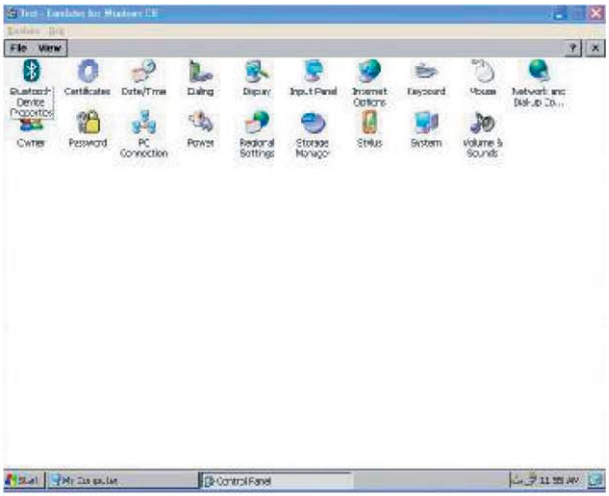
3.1 for Windows CE2.12/3.0

With Win CE bundle calibration utility:

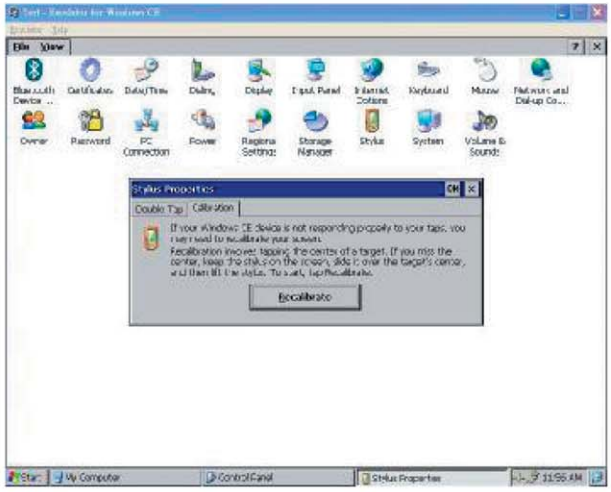
Users can use the stylus to do the calibration, which can be found in the control panel.



Double click on **[Control Panel]**



Choose the **[Stylus]**

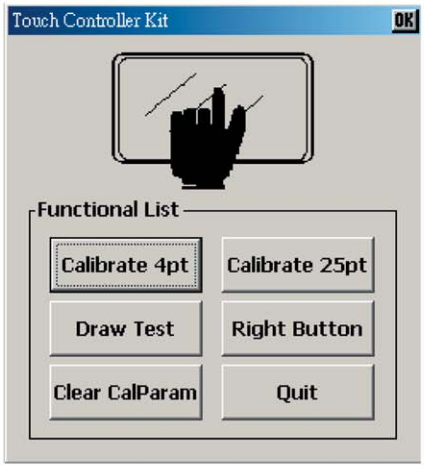


The Recalibration window shows

With TouchKit dedicated configuration utility :

Double click **TouchKit.exe** file to execute it.

There are six buttons, **[Calibrate 4pt]**, **[Draw Test]**, **[Clear CalParam]**, **[Calibrate 4pt]**, **[Right Button]** and **[Quit]**, on the AP.



<Calibrate 4pt>

Correct 4 point locations on screen with the panel. Press on [Calibrate 4pt], screen displays as follows.

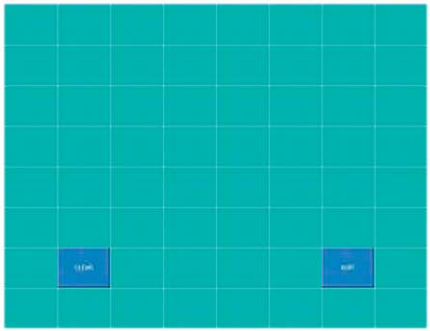
Touch the blinking symbol on panel until beep or stop blinking.

There will be a message window after this correction.

<Draw Test>

Test the drawing position related to the display screen on panel.

Click on the **[Draw Test]** button. There will be a squared blue display showing.



Try to write or draw on it to verify the touch position.

Press **[CLEAR]** for cleaning touch screen, and press **[QUIT]** to exit **Draw Test**.

<Clear CalParam>

Press **[Clear CalParam]** to clear the previous calibration records. The record will become default record.

<Calibrate 25pt>

Press **[Calibrate 25pt]** to execute 25 points calibration. Correct 25 point locations on screen with the panel.

Touch the blinking symbol on panel until beep or stop blinking.

After the calibration, the new record will overwrite the old one.

<RIGHT BUTTON>

Right mouse emulator. The default value is **on**.

Click **[Right Button]** to close the right mouse emulator.

Right Button starts with the computer booting. A mouse icon is located in the right corner of screen.

Click mouse right button; there will be a pop-up box. Select **Button**, then a squared box shows up.

Change right / left Button by click the icon on screen. Cyan area expresses what button has been selected.

After select the button, users can touch the panel to control mouse activities. Select / De-select files or Drag icons on screen, whatever the mouse behaves.

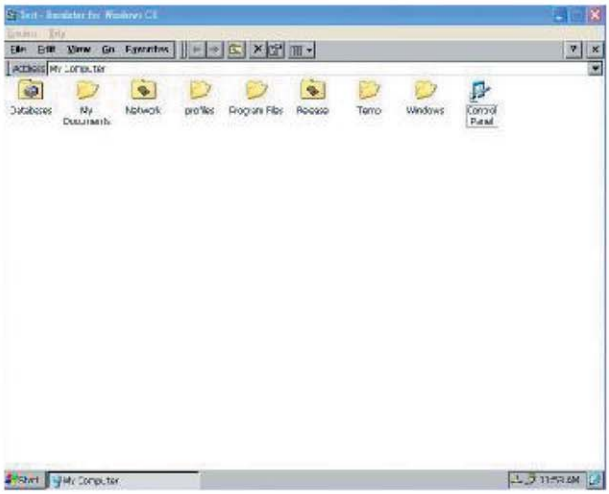
<Quit>

Exit ***TouchKit*** touch panel utility.

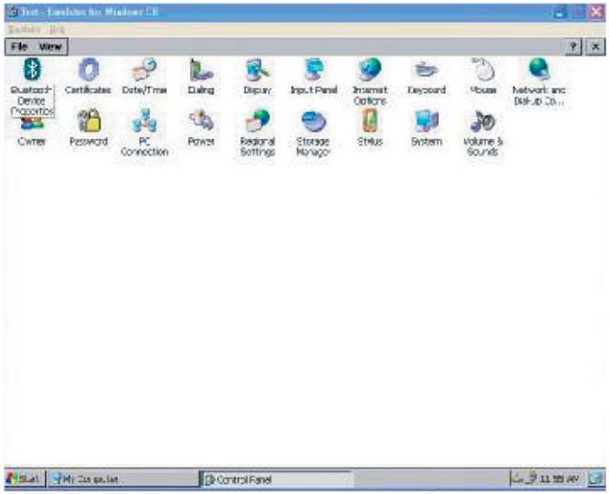
3.2 For Windows CE.NET

With Win CE.NET bundle calibration utility:

Users can use the stylus to do the calibration, which can be found in the control panel.



Double click on **[Control Panel]**



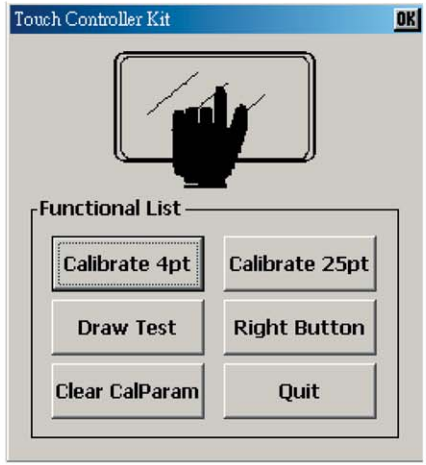
Choose the **[Stylus]**

The Recalibration window shows

With TouchKit dedicated configuration utility :

Double click **TouchKit.exe** file to execute it.

There are six buttons, **[Calibrate 4pt]**, **[Draw Test]**, **[Clear CalParam]**, **[Calibrate 4pt]**, **[Right Button]** and **[Quit]**, on the AP.



<Calibrate 4pt>

Correct 4 point locations on screen with the panel. Press on [Calibrate 4pt], screen displays as follows.

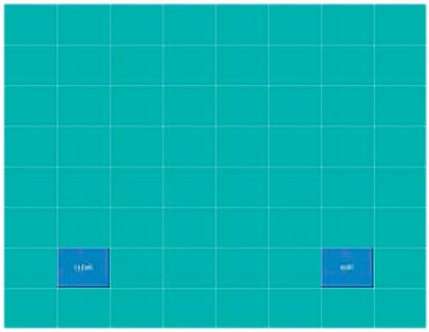
Touch the blinking symbol on panel until beep or stop blinking.

There will be a message window after this correction.

<Draw Test>

Test the drawing position related to the display screen on panel.

Click on the **[Draw Test]** button. There will be a squared blue display showing.



Try to write or draw on it to verify the touch position.

Press **[CLEAR]** for cleaning touch screen, and press **[QUIT]** to exit **Draw Test**.

<Clear CalParam>

Press **[Clear CalParam]** to clear the previous calibration records. The record will become default record.

<Calibrate 25pt>

Press **[Calibrate 25pt]** to execute 25 points calibration. Correct 25 point locations on screen with the panel.

Touch the blinking symbol on panel until beep or stop blinking.

After the calibration, the new record will overwrite the old one.

<RIGHT BUTTON>

Right mouse emulator. The default value is **on**.

Click **[Right Button]** to close the right mouse emulator.

Right Button starts with the computer booting. A mouse icon is located in the right corner of screen.

Click mouse right button; there will be a pop-up box. Select **Button**, then a squared box shows up.

Change right / left Button by click the icon on screen. Cyan area expresses what button has been selected.

After select the button, users can touch the panel to control mouse activities. Select / De-select files or Drag icons on screen, whatever the mouse behaves.

<Quit>

Exit ***TouchKit*** touch panel utility.

D

Appendix D

EZMonitor Touchscreen Driver Installation and Calibration - Windows 2000

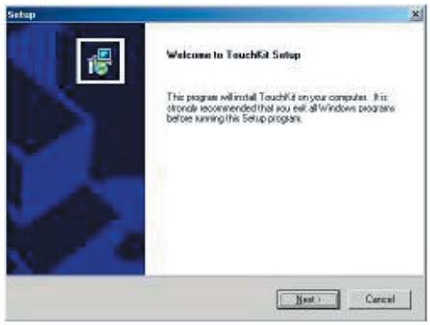
TouchKit is software, which contains drivers of the touch panel controllers for the specified communication connectors, RS232, PS/2 and USB, and the other two utilities:

- **Touch Tray support**
  This is utility for emulating the right and left button of mouse through controlling touch panel. User can toggle between right or left mouse buttons by this utility.

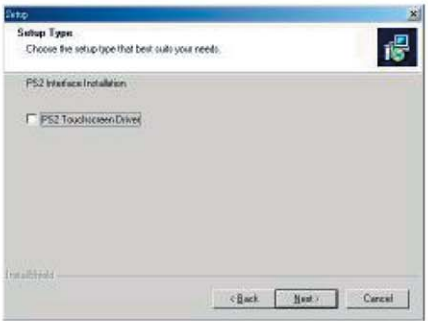
- **Configuration support**
  The calibration and draw test of touch panel are done by this utility. Besides, user can add or remove for new RS-232 or PS/2 touch panel devices.

Follow these steps to install ***TouchKit.***

1. Put the ***TouchKit*** CD to CD-ROM.
2. Change directory to **Win2000_XP**
3. Double click the **Setup.exe**, then windows starts to run the installation program. Notice that do not plug the USB controller on the system before the installation has been finished.
4. Just click **[Next >]** button to continue installation.

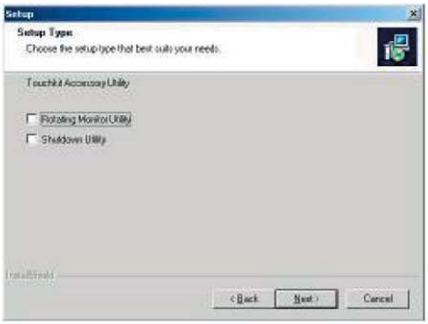


5. Then check the check box if PS/2 touch controller is to be installed. The default is unchecked. Then Press **[Next >]** to continue installation.

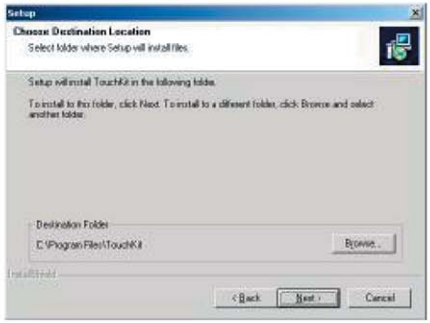


System will give you a warning, if user checks the PS2AUX check box,

6. Choose the setup type that best suits your needs. There are two ***TouchKit*** accessory utilities for choosing, **Rotation Monitor Utility** and **Shutdown Utility**. Users can install the utility they want by checking the box. Then Press **[Next >]** to continue installation.



7. Select the appropriate folder where set-up files will be installed. Then Press **[Next >]** to continue installation.

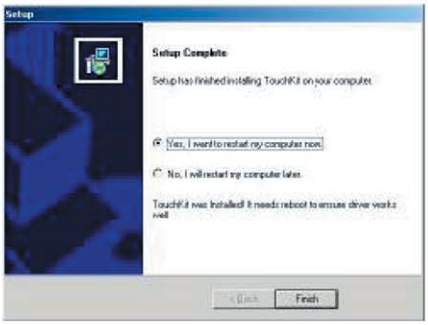


8. Then type in the name of program folder for ***TouchKit*** or press **[Next >]** to continue. There will be a default name for it.

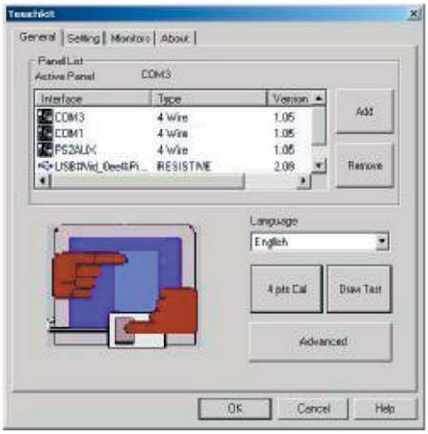
During driver installation, the setup program will scan COM port for RS232 ***Touchkit*** controller. Once the controller was scanned, the setup program will display a dialog as

Click Yes to add the controller on the specified COM port automatically.

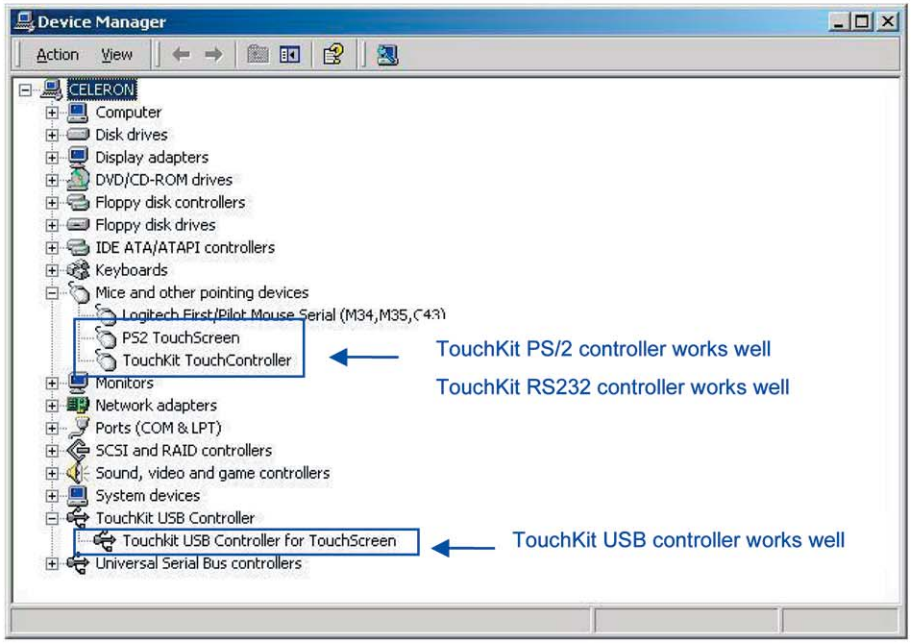
9. Windows is copying files to disk and the setup is complete. After finishing the installation, if PS/2 touch controller is installed, it needs to reboot the computer.



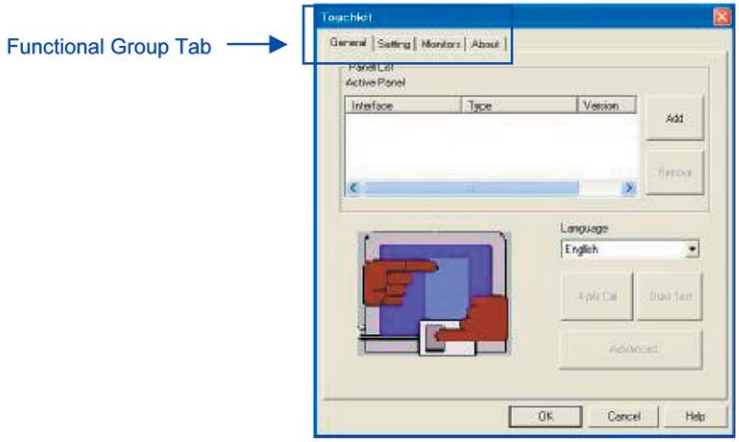
10. Setup is complete. After ***TouchKit*** installation, the USB device will be found automatically as soon as it was plugged into the computer. Then user can see the new device on the application program window. And, the program will remove the USB Device automatically as soon as it was unplugged.



11. Users can check the situation of controllers in Device Manager. If the controller is set up well, there will be messages as the following picture.



There are four property pages in ***TouchKit*** utility, and they are **General**, **Setting**, **Monitors** and **About**. Each property page contains different functions for users to do the adjustments. Therefore, users can easily manage all the ***TouchKit*** controllers through ***TouchKit*** Utility.

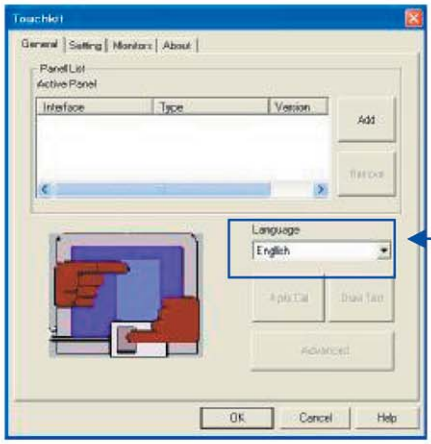


General

General property page contains the functions of **language selection**, **devices add/ remove**, **4 points calibration**, **Draw test** and **advanced**.

<Language>

TouchKit supports multi-language user interface. Users could select native language that is compatible to operation system support. For example, if the operation system is a traditional Chinese version, user could see the normal display words under the traditional Chinese and English mode. There are nine different languages, **English**, **Traditional Chinese**, **Simplified Chinese**, **French**, **Spanish**, **German**, **Japanese, Italian** and **Korean**, supported in this feature of ***TouchKit***.

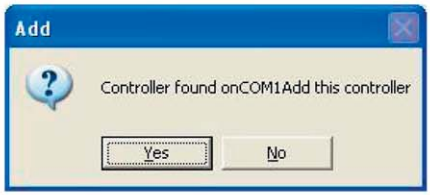


Note to select the compatible language first.

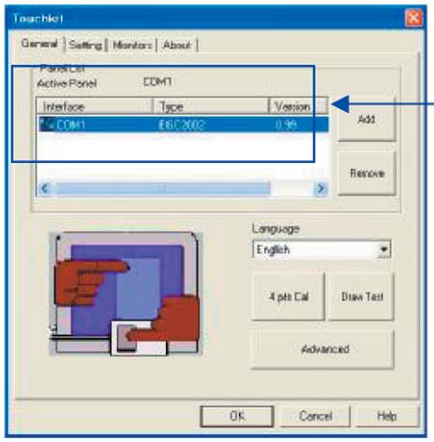
Select the compatible language first or user may not see the normal display of each button.

<Add> / <Remove>

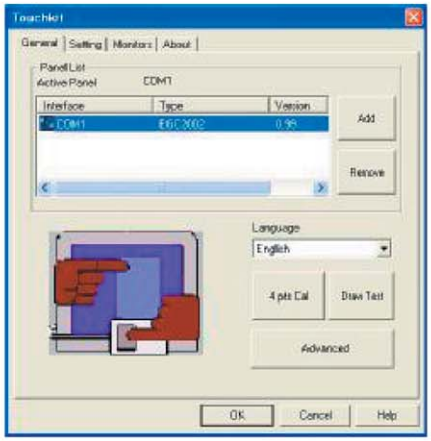
Please check the touch panel devices (including its controller) are equipped well, then click **[Add]** button to add all of those RS-232 and PS/2 components to the **Panel List** dialogue box.



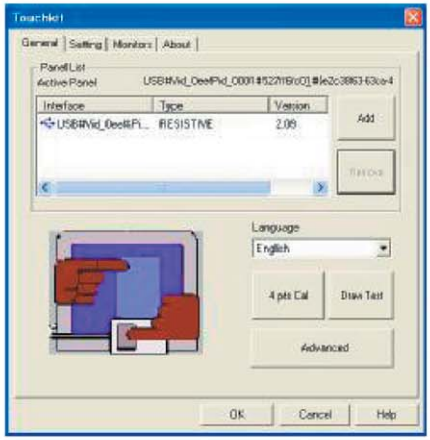
There is one devices found. Press **[Yes]** to continue.



The controller is displayed on the Panel List box. users can get the information of interface, type, firmware version and baud rate for each controller.
Select one device after added more than one device at the panel list window.
The one selected will activate the panel, and remember to do the calibration before starting to use touch panel.



But, for hot-swapping USB touch controller, it will be added automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB touch controller automatically as soon as it was unplugged.



There are three buttons, **[4pts Cal] [Draw Test] [Advanced]**, at the lower section of the **General** property page.

<4pts Cal>

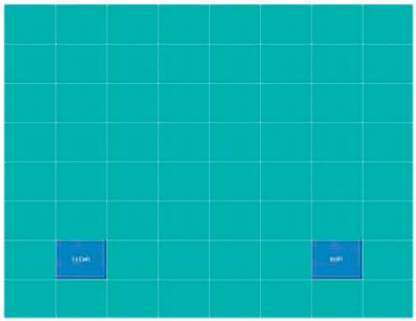
Correct 4 point locations on screen with the panel. Press **[4 pts Cal]**, screen displays as follows.

Touch the blinking symbol on panel until beep or stop blinking.

<Draw Test>

Test the drawing position related to the display screen on panel.

Click on the **[Draw Test]** button. There will be a squared blue display showing.

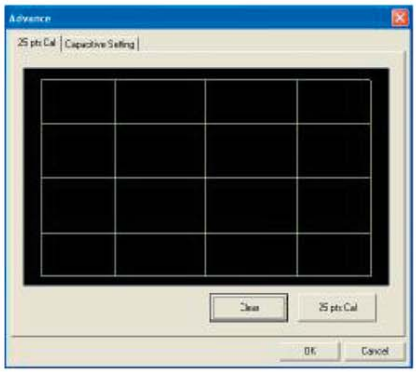


In drawing test window, users can click **[Clear]** button to clear the window. Also, User can click **[Quit]** or press mouse right button to quit from the drawing test.

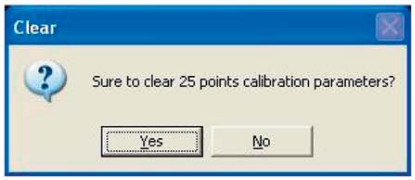
If **no touch action** happen within minutes, it will quit from the draw test window automatically. In drawing test window, users can verify the panel linearity, calibration capability, and drawing line quality.

<Advanced>

Touchkit provide more accuracy 25 points calibration for touch sensor. In addition, ***Touchkit*** provide controller setting for capacitive touch sensor. If the capacitive controller is selected, a capacitive setting property page appears on the advanced sheet. In general case, it does not need to do 25 points calibration other then bad linearity sensor.



Press **[Clear]** to clear the previous calibration records.

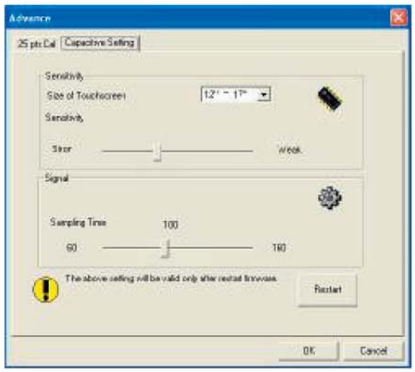


Press **[Yes]** to clear previous records.The record will become default record.

Press **[25ptCal]** to do 25 points calibration. Correct 25 point locations on screen with the panel.

Touch the blinking symbol on panel until beep or stop blinking.
After the calibration, the new record will overwrite the old one.

If the selected controller is capacitive type, an extra property page for capacitive setting adjustment shown as below:



Please select property size of capacitive screen first, and press **[Restart]**

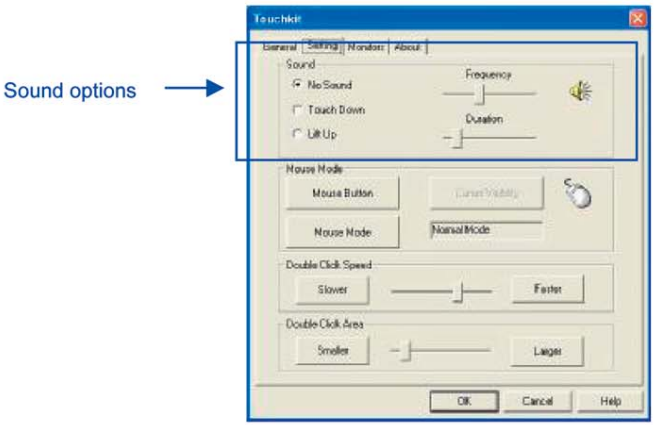
The capacitive controller will restart, and do not touch the screen before the warning message disappears

Warming: Do not adjust the sensitive and sampling time without RD help

Setting

There are three functional groups in **Setting** property page, and at the upper section of the property page is **sound option**; at the middle section is **Mouse Mode;** and at the lower section is **Double Click Adjustment**.

The **Sound** options provide user the click feedback while touching the panel.
Select preferred option first.



<No Sound>

Users could choose to make no sound while using the touch panel.

<Touch Down>

The system will make a sound while touching the panel.

<Lift Up>

The system will not make any sound until finger leaves the touch panel.

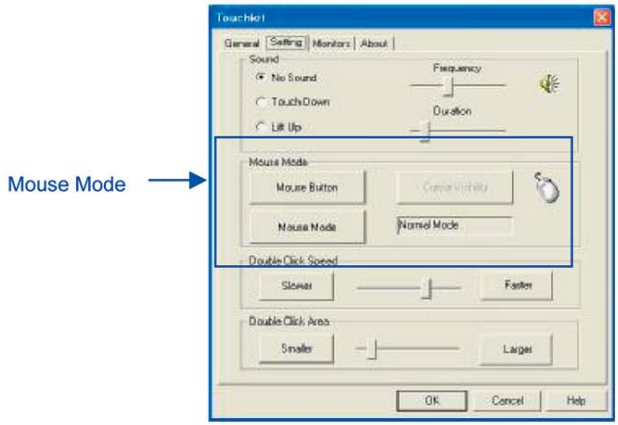
<Frequency>

Sound frequency, drag the cursor from left to right is low to high.

<Duration>

Sound duration, drag the cursor from left to right is short to long.

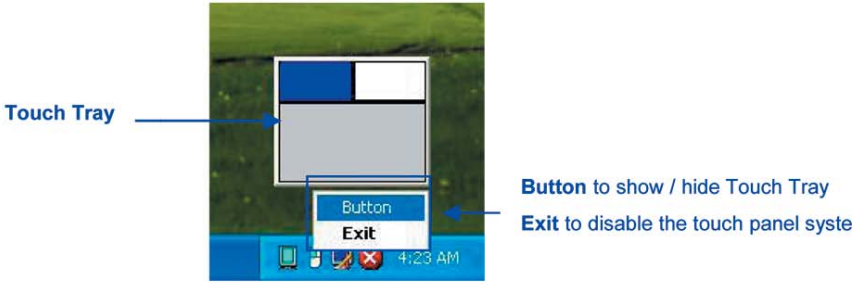
The **Mouse Mode** provides user different operating options. They are as follows:



<Mouse Button>

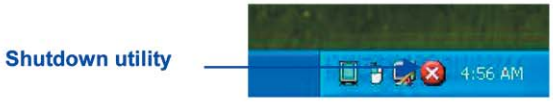
Click it to **show / hide *Touch Tray*** on the right bottom corner of the desktop. The touch panel system starts with the computer booting, and a mouse icon shows in the taskbar.

Users can choose show or hide ***Touch Tray*** from the mouse icon in the taskbar. Just right click the mouse icon, there will be a pop-up box. Using the **Button** to choose show or hide, and if user wants to disable the touch panel system, choose **Exit.**



Change **right / left** button by clicking the upper small rectangular box of ***Touch Tray***. Blue area expresses what button has been selected.

<Shutdown utility>



Click on shutdown utility in the task bar

Shutdown utility dialog

There are five modes in shutdown utility for users convenience.
[Standby] to enter standby mode that saves power consumption.
[Shutdown] to turn off PC.
[Reboot] to restart PC.
[Cancel] to escape from the Shutdown utility dialog.
[Exit] to disable the Shutdown utility.

Please notice that Windows NT doesn't support this function.

<Mouse Mode>

There are three kinds of mouse mode user could choose,

[Normal Mode]

It provides all the mouse functions, including the dragging function.

[Click on Touch]

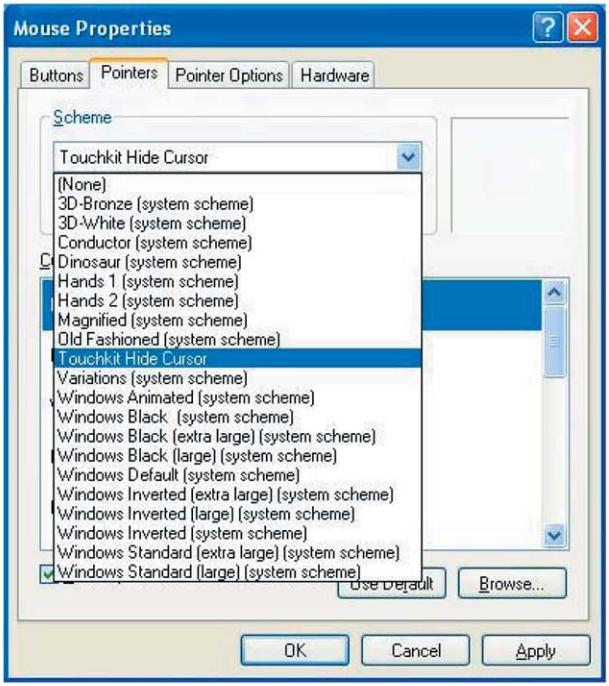
Click action is executed as soon as user touches the panel.

[Click on Release]

Click action will not be executed until finger leaves the panel.

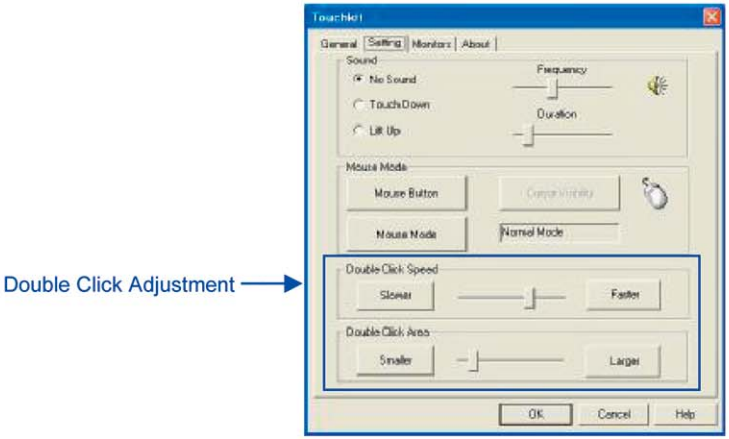
<Cursor Visibility>

Cursor visibility function provides user to hide the cursor in the display. Please go to **Start / Control Panel / Mouse / Pointers / Scheme**, and choose **TouchKit Hide Cursor**. Press **[Apply]** to make setting change, and press **[OK]** to escape the property page.



If user wants to cancel the function of TouchKit Hide Cursor, do the steps again and choose the other scheme.

The **Double Click adjustment** provides user to set up the tolerance while double clicking. They are as follows:



<Double Click Speed>

Double Click Speed is the double click response time for Windows system. User can adjust the proper double click for easy double click by touch panel.

<Double Click Area>

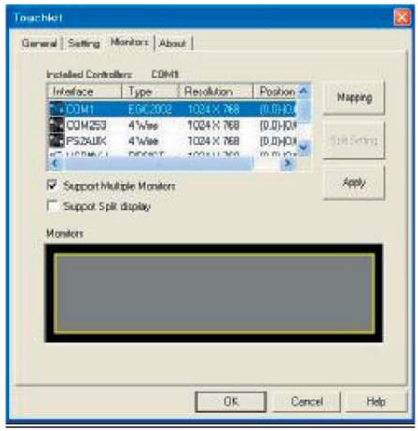
Each one touch has its own touch tolerance once someone may not fix in one point. So if user set the Double Click Area to **<Smaller>**, the panel will be very sensitive about micro-move while user wants to fix on a point. If user set it to **<Larger>**, it tolerates the larger touch point movement while user want to point at a fixed position.

Monitors

There are two functions in this property page, and they are **Multiple Monitors** and **Split Monitor**. Such a trendy and yet innovated design provides viewing pleasures, viewing flexibility and convenience to the users.

<Multiple Monitors>

To configure the mapping relationship between the monitors and the touch panels, select the monitor page as below.

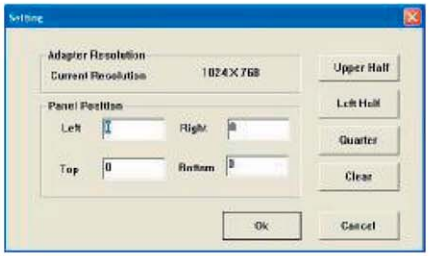


Set the check box (Use Multiple Monitors) to enable multiple monitors mapping. Uncheck this box will disable multiple-monitor configuration, and all of the touch panel controllers will be mapped to the primary monitor. The gray shadow area is the monitor mapped the selected controller/panel. The button **[Mapping]** is used to find the mapping relationships between the monitors and touch panel controllers. Press the **[Mapping]**, the software will guide the user to touch the corresponding monitor to obtain the mapping relationship.

After finish monitor mapping, Press **[Apply]** to apply the mapping relation.

<Split Monitors>

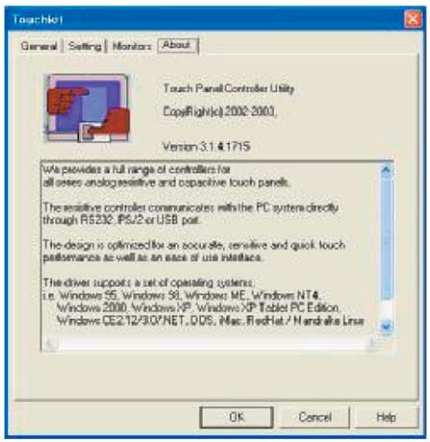
To use the Split Monitor function, users need to select which controller you want to launch this function, then check the Multiple Monitors box and Split Monitor at the same time as showing as the follow picture. Press the **[Split Monitor]** button to set up the activate area.



It shows the current resolution of display and users can set up the activate area by inputting the value by yourself or use the default button **[Upper Half]**, **[Left Half]** or **[Quarter]**. The default value of panel resolution should be full screen as Left: **0** , Right: **0**, Top: **0** and Bottom: **0**.

About

Information about ***TouchKit***.



TouchKit driver package for Windows 98/ME/2000/XP provides two easiest ways to rotate the touch panel while the display is rotated.

- Rotating display by way of nVidia or ATI driver
- Rotating display by way of Pivot.

4.1 Rotating display by way of nVidia or ATI driver

1. After activating the rotation of nVidia or ATI driver, there will be one blinking symbol show as the following picture. Touch near the blinking symbol until stop blinking, and the touch panel will rotate itself.

One touch blinking symbol adjustment

2. However, 180˚ rotation of touch panel can not be done in one step, users need to rotate 90˚ twice.

4.2 Rotating display by way of Pivot

There are two ways to rotate the display by way of Pivot.

- Rotating display by way of Pivot hotkey or function menu
- Rotating display by way of RotTray icon provided by ***TouchKit***.

< Rotating display by way of Pivot hotkey or function menu >

1. To rotate the display, please install Pivot pro 6.05 first. Then reboot PC to activate Pivot.

2. There will be a pivot icon in the task bar. User can click on it, and user can choose four angles: 0˚, 90˚, 180˚, 270˚ to rotate the display.

3. After choosing the angle users want to rotate, there will be one blinking symbol showing as the following picture. Touch this blinking symbol until stop blinking, and the touch panel will rotate itself.

One touch blinking symbol adjustment

4. However 180 ˚rotation of touch panel can not be done in one step, users need to rotate 90˚ twice.

< Rotating display by way of RotTray icon provided by TouchKit>

1. To rotate the display, please install Pivot pro 6.05 first. Then reboot PC to activate Pivot.

2. Users will see ***RotTray*** icon in the task bar.

RotTray icon

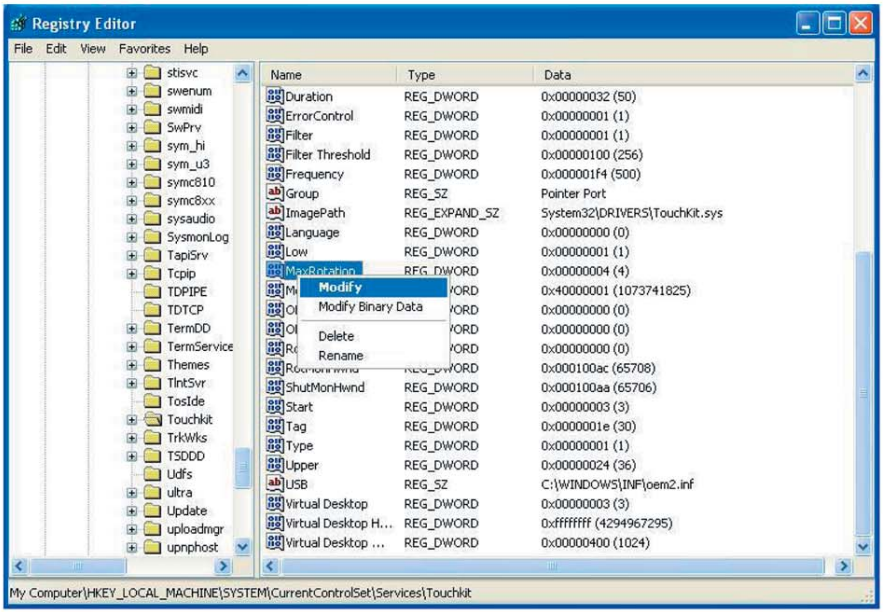
3. Clicking on ***RotTray***, it will call Pivot to rotate the display and touch panel 90 ° at the same time. Clicking it again, it will rotate another 90 °to 180 °. Every click on ***RotTray***, display will rotate clockwise. Recalibration and one symbol adjustment won't be necessary anymore.

4. However this version of ***RotTray*** is design for Pivot pro 6.05. If users want to use older version of Pivot, like Pivot 5.1, users need to amend the value of windows registry. The next step is an example for setting Pivot 5.1 on Win98.

5. Go to **Start / Run**, and execute regedit.

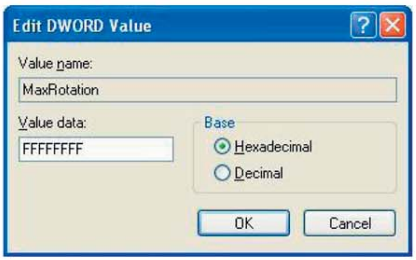
Press **[OK]** to execute

6. **For Windows 95/98/ME** OS, The Registry Editor will show as the follow picture. Then go to
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VxD\TKIT.
For Windows 2000/ XP, please go to
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Touchkit
Right click on the **MaxRotation**, and choose Modify.



Right click on MaxRotation to Modify Value data

7. Choosing the Hexadecimal Base, and replace the value data “4”(default) with “FFFFFFFF”.



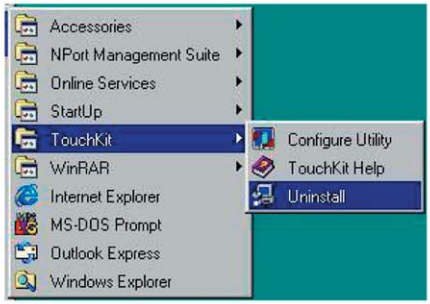
Pressing **[OK]** to confirm.

8. Here bellow are the value data for different version of Pivot:

Version of Pivot	Available Angle	Value Data
Pivot pro 6.05	0˚,90˚,180˚270˚	4 (default)
Pivot 5.1	0˚,-90˚	FFFFFFFF
Other Version	0˚, 90˚	2

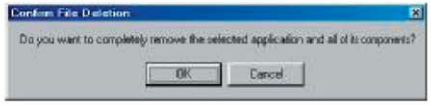
Follow these steps to uninstall ***TouchKit.***

1. Go to **Start / Programs / TouchKit / Uninstall**, and execute it.

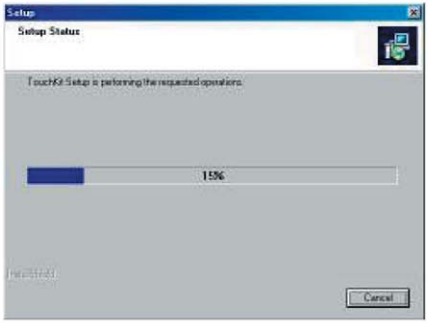


2. ***TouchKit*** setup dialog appears, and prepares to uninstall.

3. Confirm dialog, press **[OK]** to start un-installation; **[Cancel]** to cancel un-installation.

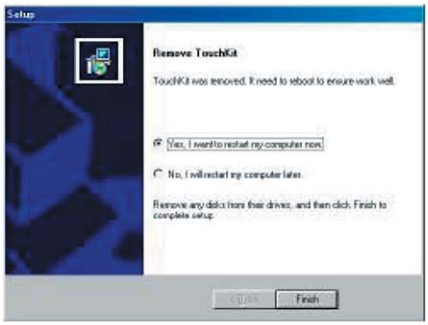


4. Start to uninstall ***TouchKit***.



If user does not want to uninstall ***TouchKit*** at this moment, press **[Cancel]** to terminate the uninstall process.

5. ***TouchKit*** will not be removed until system re-boot. Press **[Yes]** to re-boot immediately or **[No]** to re-boot later.



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E

Appendix E

EZMonitor Touchscreen Driver Installation and Calibration - Windows 9x & ME

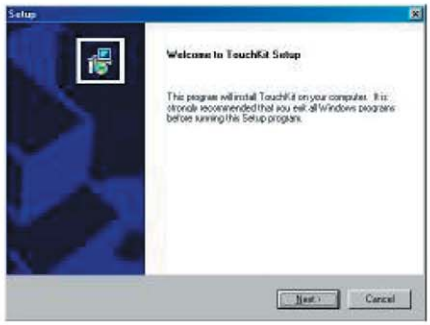
TouchKit is software, which contains drivers of the touch panel controllers for the specified communication connectors, RS232, PS/2 and USB, and the other two utilities:

- **Touch Tray support**
  This is utility for emulating the right and left button of mouse through controlling touch panel. Users can toggle between right or left mouse buttons by this utility.

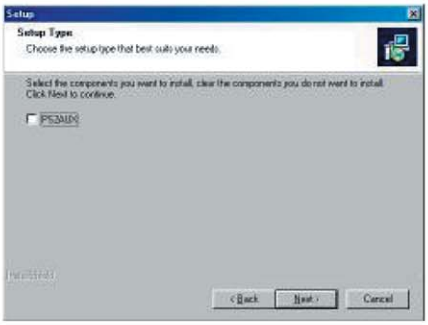
- **Configuration support**
  The calibration and draw test of touch panel are done by this utility. Besides, user can add or remove for new RS-232, PS/2 or USB touch panel devices.

Follow these steps to install ***TouchKit.***

1. Put the ***TouchKit*** CD to CD-ROM.
2. Change directory to **Win9X_ME**
3. Double click the **Setup.exe**, then windows starts to run the installation program. Notice that do not plug the USB controller on the system before the installation has been finished.
4. Just click **[Next >]** button to continue installation.

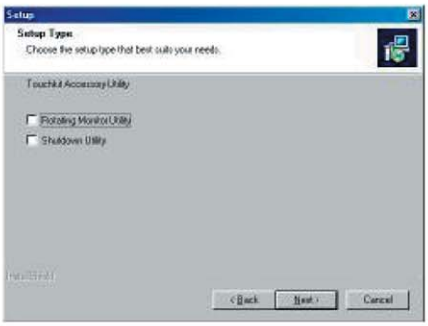


5. Then check the check box if PS/2 touch controller is to be installed. The default is unchecked. Then Press **[Next >]** to continue installation.

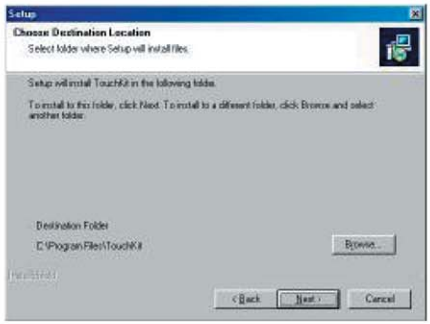


System will give you a warning, if user checks the PS2AUX check box,

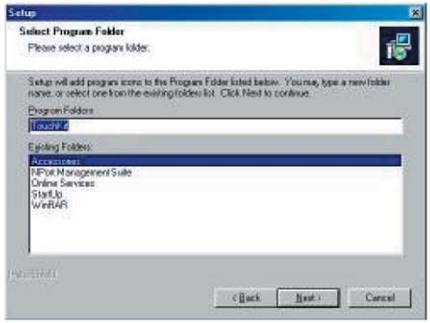
6. Choose the setup type that best suits your needs. There are two ***TouchKit*** accessory utilities for choosing, **Rotation Monitor Utility** and **Shutdown Utility**. Users can install the utility they want by checking the box. Then Press **[Next >]** to continue installation.



7. Select the appropriate folder where set-up files will be installed. Then Press **[Next >]** to continue installation.



8. Then type in the name of program folder for ***TouchKit*** or press **[Next >]** to continue. There will be a default name for it.

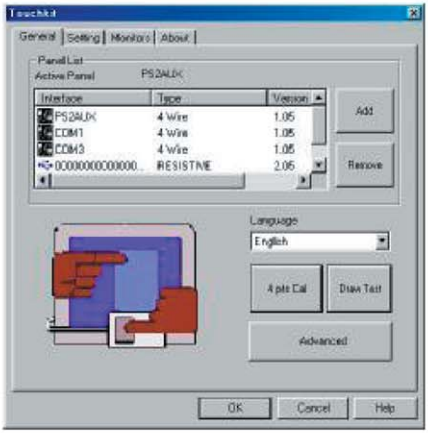


During driver installation, the setup program will scan COM port for RS232 ***Touchkit*** controller. Once the controller was scanned, the setup program will display a dialog as

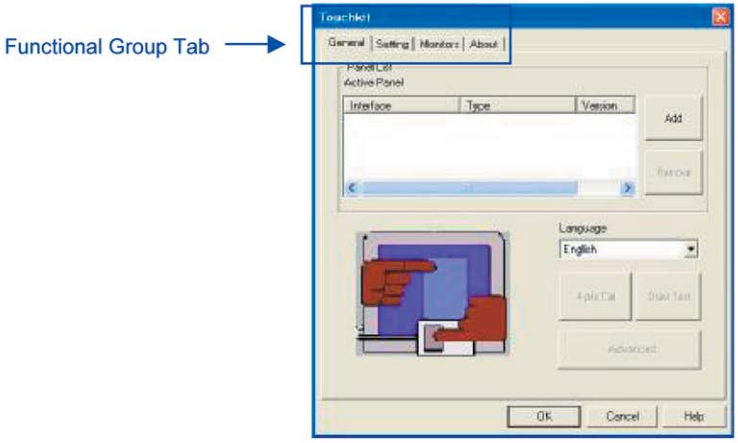
Click Yes to add the controller on the specified COM port automatically.

9. Windows is copying files to disk and the setup is complete. It will request re-boot computer. Press **[Yes >]** to re-boot immediately or **[No >]** to re-boot later. The installation will not be finished until system re-boot.

10. Setup is complete. After ***TouchKit*** installation, the USB device will be found automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB Device automatically as soon as it was unplugged. **(USB device is not supported for Windows95)**



There are four property pages in ***TouchKit*** utility, and they are **General**, **Setting**, **Monitors** and **About**. Each property page contains different functions for users to do the adjustments. Therefore, users can easily manage all the ***TouchKit*** controllers through ***TouchKit*** Utility.

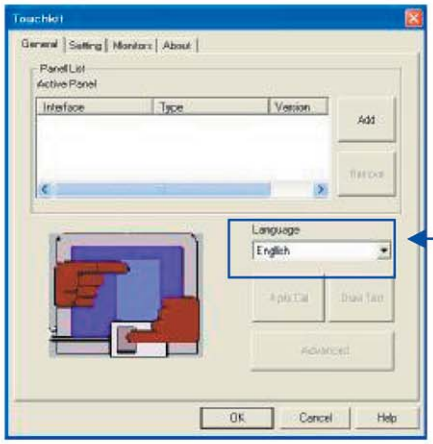


General

General property page contains the functions of **language selection**, **devices add/ remove**, **4 points calibration**, **Draw test** and **advanced**.

<Language>

TouchKit supports multi-language user interface. Users could select native language that is compatible to operation system support. For example, if the operation system is a traditional Chinese version, user could see the normal display words under the traditional Chinese and English mode. There are nine different languages, **English**, **Traditional Chinese**, **Simplified Chinese**, **French**, **Spanish**, **German**, **Japanese, Italian** and **Korean**, supported in this feature of ***TouchKit***.

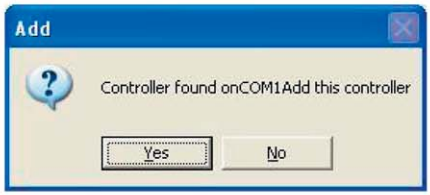


Note to select the compatible language first.

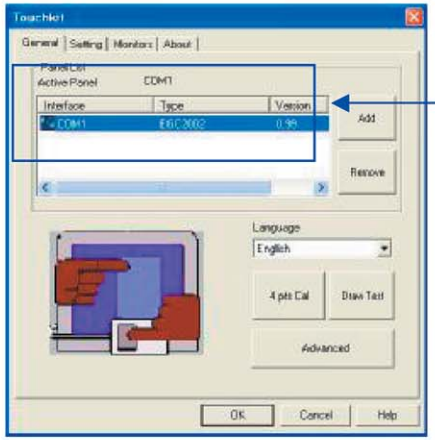
Select the compatible language first or user may not see the normal display of each button.

<Add> / <Remove>

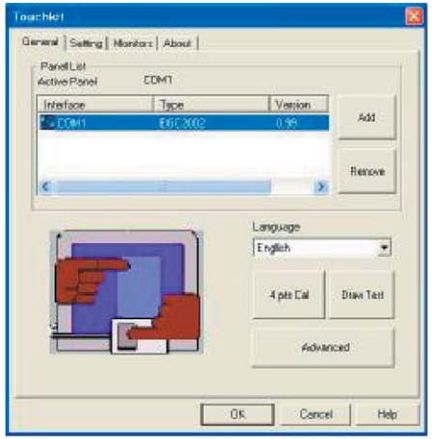
Please check the touch panel devices (including its controller) are equipped well, then click **[Add]** button to add all of those RS-232 and PS/2 components to the **Panel List** dialogue box.



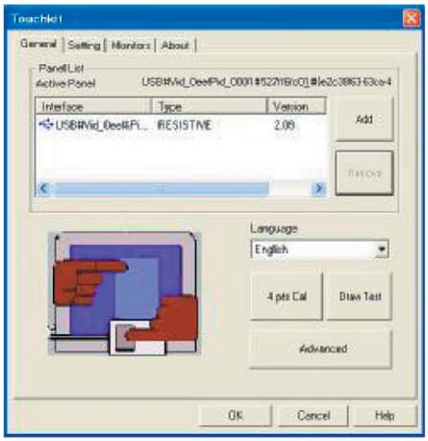
There is one devices found. Press **[Yes]** to continue.



The controller is displayed on the Panel List box. users can get the information of interface, type, firmware version and baud rate for each controller.
Select one device after added more than one device at the panel list window.
The one selected will activate the panel, and remember to do the calibration before starting to use touch panel.



But, for hot-swapping USB touch controller, it will be added automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB touch controller automatically as soon as it was unplugged. **(USB device is not supported for Windows95)**



There are three buttons, **[4pts Cal] [Draw Test] [Advanced]**, at the lower section of the **General** property page.

<4pts Cal>

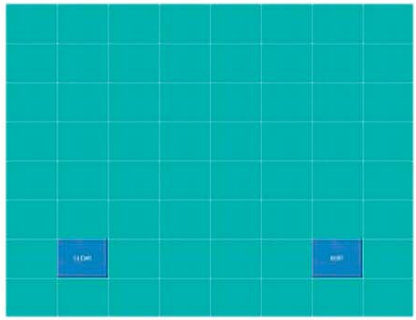
Correct 4 point locations on screen with the panel. Press **[4 pts Cal]**, screen displays as follows.

Touch the blinking symbol on panel until beep or stop blinking.

<Draw Test>

Test the drawing position related to the display screen on panel.

Click on the **[Draw Test]** button. There will be a squared blue display showing.

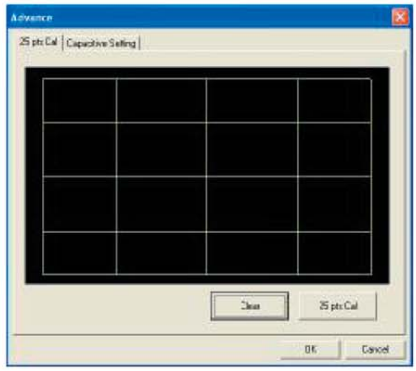


In drawing test window, users can click **[Clear]** button to clear the window. Also, User can click **[Quit]** or press mouse right button to quit from the drawing test.

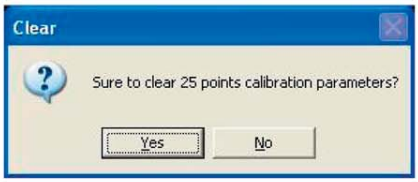
If **no touch action** happen within minutes, it will quit from the draw test window automatically. In drawing test window, users can verify the panel linearity, calibration capability, and drawing line quality.

<Advanced>

Touchkit provide more accuracy 25 points calibration for touch sensor. In addition, ***Touchkit*** provide controller setting for capacitive touch sensor. If the capacitive controller is selected, a capacitive setting property page appears on the advanced sheet. In general case, it does not need to do 25 points calibration other then bad linearity sensor.



Press **[Clear]** to clear the previous calibration records.

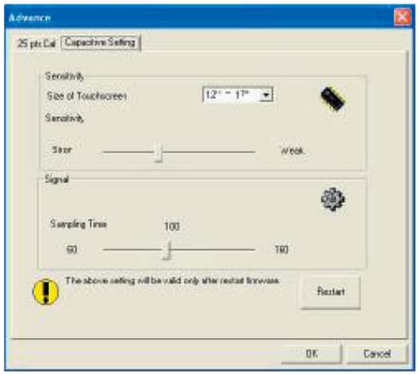


Press **[Yes]** to clear previous records.The record will become default record.

Press **[25ptCal]** to do 25 points calibration. Correct 25 point locations on screen with the panel.

Touch the blinking symbol on panel until beep or stop blinking.
After the calibration, the new record will overwrite the old one.

If the selected controller is capacitive type, an extra property page for capacitive setting adjustment shown as below:



Please select property size of capacitive screen first, and press **[Restart]**

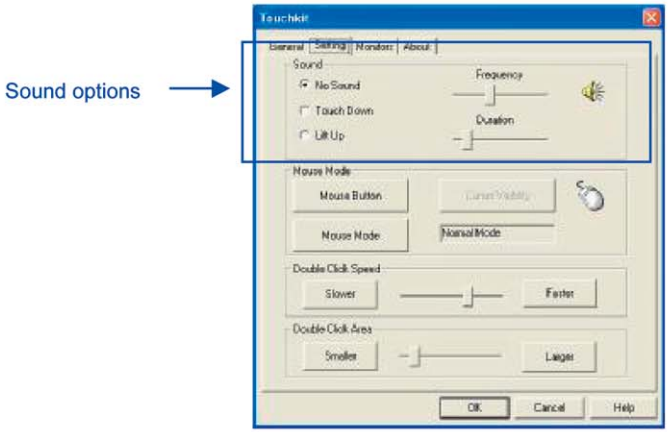
The capacitive controller will restart, and do not touch the screen before the warning message disappears

Warming: Do not adjust the sensitive and sampling time without RD help

Setting

There are three functional groups in **Setting** property page, and at the upper section of the property page is **sound option**; at the middle section is **Mouse Mode;** and at the lower section is **Double Click Adjustment**.

The **Sound** options provide user the click feedback while touching the panel.
Select preferred option first.



<No Sound>

Users could choose to make no sound while using the touch panel.

<Touch Down>

The system will make a sound while touching the panel.

<Lift Up>

The system will not make any sound until finger leaves the touch panel.

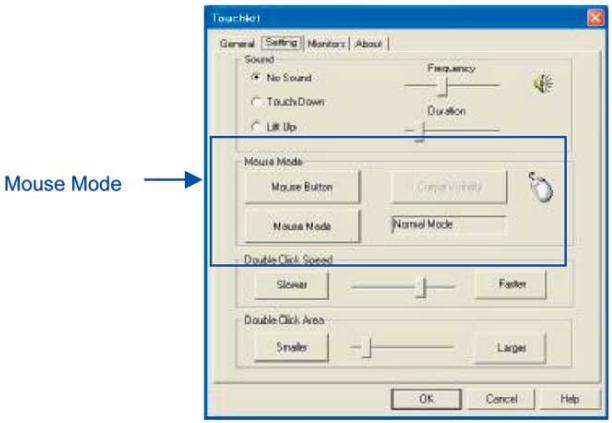
<Frequency>

Sound frequency, drag the cursor from left to right is low to high.

<Duration>

Sound duration, drag the cursor from left to right is short to long.

The **Mouse Mode** provides user different operating options. They are as follows:



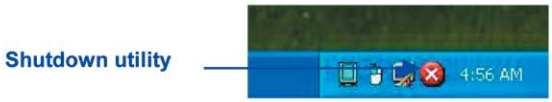
<Mouse Button>

Click it to **show / hide *Touch Tray*** on the right bottom corner of the desktop. The touch panel system starts with the computer booting, and a mouse icon shows in the taskbar.

Users can choose show or hide ***Touch Tray*** from the mouse icon in the taskbar. Just right click the mouse icon, there will be a pop-up box. Using the **Button** to choose show or hide, and if user wants to disable the touch panel system, choose **Exit.**

Change **right / left** button by clicking the upper small rectangular box of ***Touch Tray***. Blue area expresses what button has been selected.

<Shutdown utility>



Click on shutdown utility in the task bar

Shutdown utility dialog

There are five modes in shutdown utility for users convenience.
[Standby] to enter standby mode that saves power consumption.
[Shutdown] to turn off PC.
[Reboot] to restart PC.
[Cancel] to escape from the Shutdown utility dialog.
[Exit] to disable the Shutdown utility.

Please notice that Windows NT doesn't support this function.

<Mouse Mode>

There are three kinds of mouse mode user could choose,

[Normal Mode]

It provides all the mouse functions, including the dragging function.

[Click on Touch]

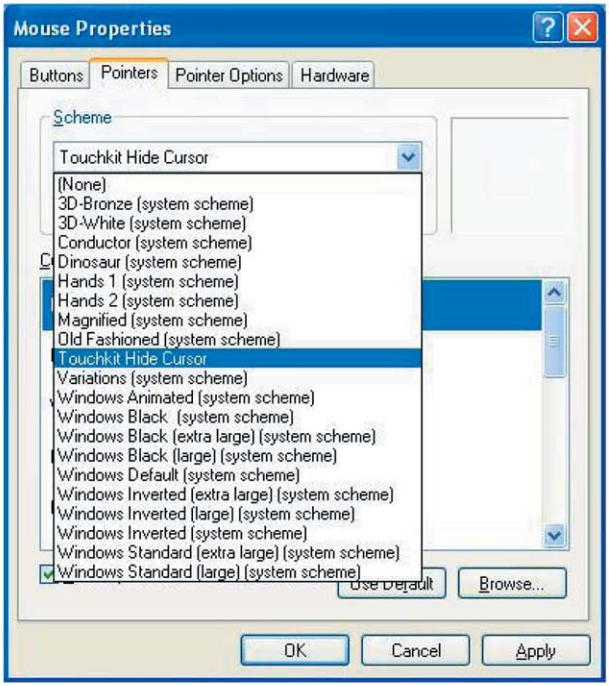
Click action is executed as soon as user touches the panel.

[Click on Release]

Click action will not be executed until finger leaves the panel.

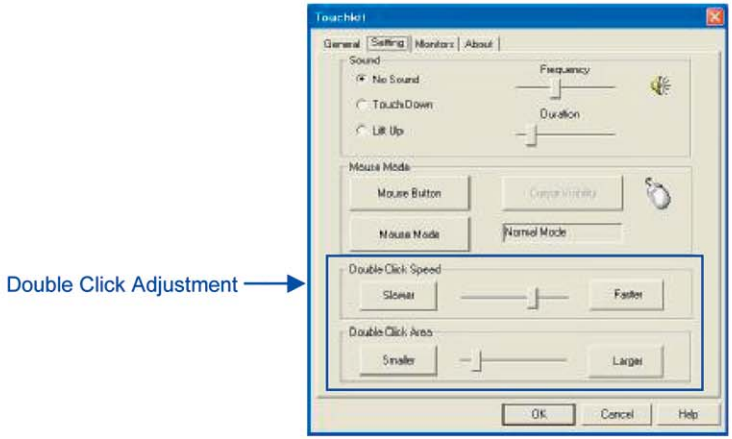
<Cursor Visibility>

Cursor visibility function provides user to hide the cursor in the display. Please go to **Start / Control Panel / Mouse / Pointers / Scheme**, and choose **TouchKit Hide Cursor**. Press **[Apply]** to make setting change, and press **[OK]** to escape the property page.



If user wants to cancel the function of TouchKit Hide Cursor, do the steps again and choose the other scheme.

The **Double Click adjustment** provides user to set up the tolerance while double clicking. They are as follows:



<Double Click Speed>

Double Click Speed is the double click response time for Windows system. User can adjust the proper double click for easy double click by touch panel.

<Double Click Area>

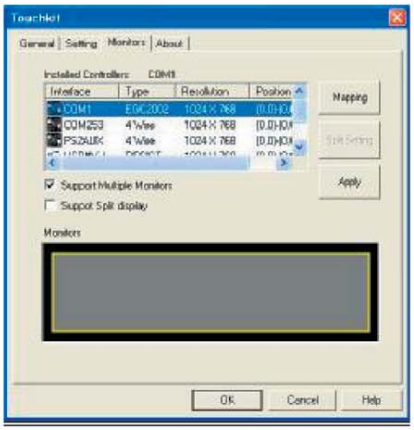
Each one touch has its own touch tolerance once someone may not fix in one point. So if user set the Double Click Area to **<Smaller>**, the panel will be very sensitive about micro-move while user wants to fix on a point. If user set it to **<Larger>**, it tolerates the larger touch point movement while user want to point at a fixed position.

Monitors

There are two functions in this property page, and they are **Multiple Monitors** and **Split Monitor**. Such a trendy and yet innovated design provides viewing pleasures, viewing flexibility and convenience to the users.

<Multiple Monitors>

To configure the mapping relationship between the monitors and the touch panels, select the monitor page as below.

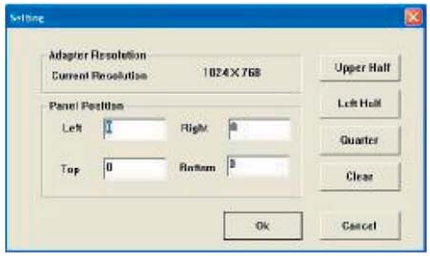


Set the check box (Use Multiple Monitors) to enable multiple monitors mapping. Uncheck this box will disable multiple-monitor configuration, and all of the touch panel controllers will be mapped to the primary monitor. The gray shadow area is the monitor mapped the selected controller/panel. The button **[Mapping]** is used to find the mapping relationships between the monitors and touch panel controllers. Press the **[Mapping]**, the software will guide the user to touch the corresponding monitor to obtain the mapping relationship.

After finish monitor mapping, Press **[Apply]** to apply the mapping relation.

<Split Monitors>

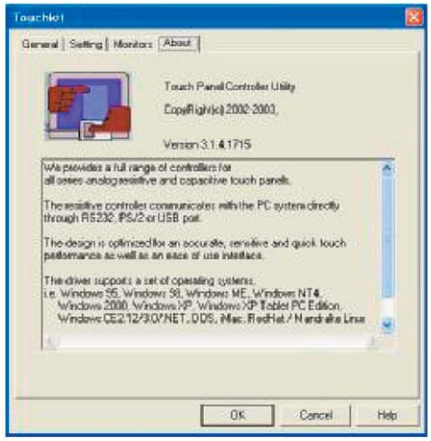
To use the Split Monitor function, users need to select which controller you want to launch this function, then check the Multiple Monitors box and Split Monitor at the same time as showing as the follow picture. Press the **[Split Monitor]** button to set up the activate area.



It shows the current resolution of display and users can set up the activate area by inputting the value by yourself or use the default button **[Upper Half]**, **[Left Half]** or **[Quarter]**. The default value of panel resolution should be full screen as Left: **0** , Right: **0**, Top: **0** and Bottom: **0**.

About

Information about ***TouchKit***.



TouchKit driver package for Windows 98/ME/2000/XP provides two easiest ways to rotate the touch panel while the display is rotated.

- Rotating display by way of nVidia or ATI driver
- Rotating display by way of Pivot.

4.1 Rotating display by way of nVidia or ATI driver

1. After activating the rotation of nVidia or ATI driver, there will be one blinking symbol show as the following picture. Touch near the blinking symbol until stop blinking, and the touch panel will rotate itself.

One touch blinking symbol adjustment

2. However, 180° rotation of touch panel can not be done in one step, users need to rotate 90° twice.

4.2 Rotating display by way of Pivot

There are two ways to rotate the display by way of Pivot.

- Rotating display by way of Pivot hotkey or function menu
- Rotating display by way of RotTray icon provided by ***TouchKit***.

< Rotating display by way of Pivot hotkey or function menu >

1. To rotate the display, please install Pivot pro 6.05 first. Then reboot PC to activate Pivot.

2. There will be a pivot icon in the task bar. User can click on it, and user can choose four angles: 0°, 90°, 180°, 270° to rotate the display.

3. After choosing the angle users want to rotate, there will be one blinking symbol showing as the following picture. Touch this blinking symbol until stop blinking, and the touch panel will rotate itself.

One touch blinking symbol adjustment

4. However 180 ° rotation of touch panel can not be done in one step, users need to rotate 90° twice.

< Rotating display by way of RotTray icon provided by TouchKit>

1. To rotate the display, please install Pivot pro 6.05 first. Then reboot PC to activate Pivot.

2. Users will see ***RotTray*** icon in the task bar.

RotTray icon

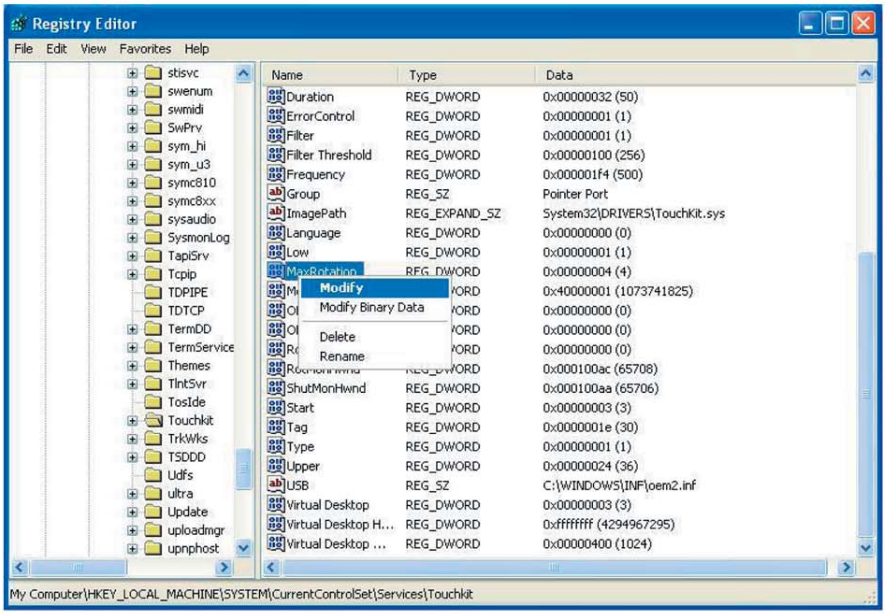
3. Clicking on ***RotTray***, it will call Pivot to rotate the display and touch panel 90 ° at the same time. Clicking it again, it will rotate another 90 °to 180 °. Every click on ***RotTray***, display will rotate clockwise. Recalibration and one symbol adjustment won't be necessary anymore.

4. However this version of ***RotTray*** is design for Pivot pro 6.05. If users want to use older version of Pivot, like Pivot 5.1, users need to amend the value of windows registry. The next step is an example for setting Pivot 5.1 on Win98.

5. Go to **Start / Run**, and execute regedit.

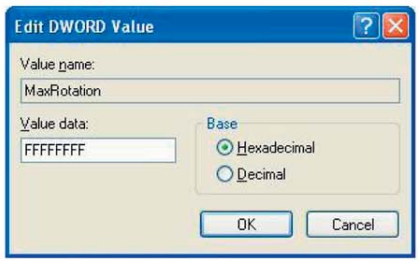
Press **[OK]** to execute

6. **For Windows 95/98/ME** OS, The Registry Editor will show as the follow picture. Then go to HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VxD\TKIT.
   For Windows 2000/ XP, please go to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Touchkit
   Right click on the **MaxRotation**, and choose Modify.



Right click on MaxRotation to Modify Value data

7. Choosing the Hexadecimal Base, and replace the value data “4”(default) with “FFFFFFFF”.



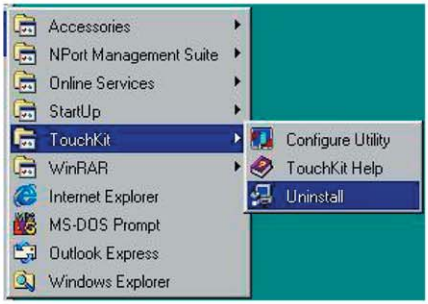
Pressing **[OK]** to confirm.

8. Here bellow are the value data for different version of Pivot:

Version of Pivot	Available Angle	Value Data
Pivot pro 6.05	0˚,90˚,180˚270˚	4 (default)
Pivot 5.1	0˚,-90˚	FFFFFFFF
Other Version	0˚, 90˚	2

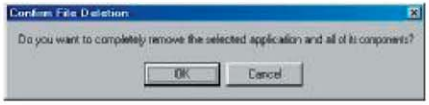
Follow these steps to uninstall ***TouchKit.***

1. Go to **Start / Programs / TouchKit / Uninstall**, and execute it.

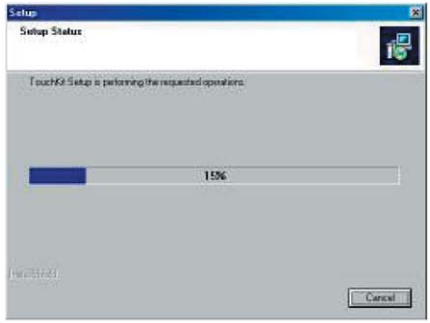


2. ***TouchKit*** setup dialog appears, and prepares to uninstall.

3. Confirm dialog, press **[OK]** to start un-installation; **[Cancel]** to cancel un-installation.

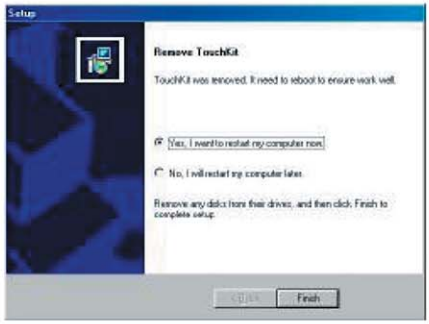


4. Start to uninstall ***TouchKit***.



If user does not want to uninstall ***TouchKit*** at this moment, press **[Cancel]** to terminate the uninstall process.

5. ***TouchKit*** will not be removed until system re-boot. Press **[Yes]** to re-boot immediately or **[No]** to re-boot later.



F

Appendix F

EZMonitor Touchscreen Driver Installation and Calibration - Linux

Tested distributions:

- Red Hat 7.0 kernel version 2.2.16,
- Red Hat 7.1 kernel version 2.4.2,
- Red Hat 7.2 kernel version 2.4.7,
- Red Hat 7.3 kernel version 2.4.18-3,
- Red Hat 8.0 kernel version 2.4.18-14,

- Mandrake 8.0 kernel version 2.4.5
- Mandrake 8.1 kernel version 2.4.8
- Mandrake 8.2 kernel version 2.4.18
- Mandrake 9.0 kernel version 2.4.19

TouchKit is software, which contains drivers and two utilities of the touch panel controllers for RS232, PS/2 and USB on Linux operation system. The two utilities are as follows:

- **Configuration support**
  The calibration and draw test of touch panel are done by this utility.

- **Right button support**
  This is utility for emulating the right and left button of mouse through controlling touch panel. User can toggle between right or left mouse buttons by this utility.

We provide two way to install the driver, one is automatic installation and the other is install manually.

<Automatic Installation>

Before install ***TouchKit*** for Linux, please make sure that (1) user have root privilege and that (2) X window system has been configured correctly.

Follow these steps to install ***TouchKit*** for Linux.

1. Put the ***TouchKit*** CD to CD-ROM and mount it on Linux operation system.
   e.g. with command: **mount /dev/cdrom /mnt/cdrom**
2. Change directory to **/mnt/cdrom/Linux/Other Version**
3. Execute script **touchkit.setup.sh** with command **sh touchkit.setup.sh**
4. The script will extract files to temporary directory and start installing:

```
(*) Extract files from [touchkit.setup.sh] to [/tmp/touchkit]
(*) Start installer [/tmp/touchkit/setup]

=== TouchKit for Linux Installer ===

(Step 1) Check Packages Installed
 [Common]
 make                    OK (make-3.79.1-5)
 tcl                     OK (tcl-8.3.1-46)
 tk                      OK (tk-8.3.1-46)
[Required for Full Mode]
 gcc                     OK (gcc-2.96-54)
 glibc-devel             OK (glibc-devel-2.1.92-14)
 XFree86-devel           OK (XFree86-devel-4.0.1-1)
 kernel-source           OK (kernel-source-2.2.16-22)
```

The first step is to check if software configuration is ready to install and to utilize ***TouchKit***. **Installation will abort if some Common packages are missing; please reinstall *TouchKit* after all those packages being installed.**

5. Press **[1]** or **[2]** followed by **enter** to select installation mode depending on the communication interface of ***TouchKit*** controller.

```
(Step 2) Select Installation Mode
(Q) Which installation mode do you prefer?
 (1) Compact Mode, (only RS232 and PS/2) or
 (2) Full Mode (RS232, PS/2 and [USB])
```

6. If **Full Mode** is selected, installer starts building process.

```
1
(I) [Full Mode] selected

(Step 3) Rebuild TouchKit
for n in include driver utility xf86drv diag usb; do            \
        make -C $n || exit 1;           \
done
        .
        .
        .
: '+------------------------------------+'
: '|  Build-All Complete Successfully  |'
: '+------------------------------------+'
```

7. After building process completes successfully (or if **Compact Mode** is selected), ***TouchKit*** will be installed into system; **user must restart X window system to see the change**.

```
(Step 4) Install TouchKit
(*) Install USB module [/lib/modules/2.2.16-22/usb/tkusb.o]
(*) Install touch panel daemon [/usr/bin/tpaneld]
(*) Install configuration utility [/usr/bin/touchcfg]
(*) Install XFree86 driver [/usr/X11R6/lib/modules/input/touchkit_drv
(*) Generate uninstall script [/usr/bin/uninstall_TouchKit]
(*) Update system starting up script [/etc/rc.d/rc.local]
(*) Update XFree86 configuration [/etc/X11/XF86Config-4]
+--------------------------------------+
|  Installation Complete Successfully  |
+--------------------------------------+
(I) Start TouchKit touch panel daemon
(I) Start USB module

(I) Please RESTART your X Window Server.
```

8. **To install driver for Redhat 8.0, Redhat 9.0**, please repeat the step 1~ 6 as the same as other version of Linux. The difference between Redhat 8.0/9.0 and other version is the install directory changed to **/mnt/cdrom/Linux/Redhat8**. Execute script **touchkit.setupr8.sh** with command **sh touchkit.setupr8.sh**. Two of software packages should be installed first, since they are not for default installation when installing OS.
   (1) sharutils-XXX.rpm
   (2) XF86Free-develXXX.rpm

   User can find these packages in disc3 and disc2 in RedhatLinux 8.0 distribution. Also, user can find these packages in this touchkit driver Redhat8.0 subfolder.

< Manual Installation >

The following manual installation is only for X Window V 4

1. Please unzip **Touchkit.tgz** to **/usr/local/TouchKit**
2. copy **tpaneld** to **/usr/bin**
3. copy **touchkit_drv.o** to **/usr/X11R6/lib/modules/input**
4. copy **tpaneld.conf** to **/etc**

Please confirm the contain is as follow:

```
tpaneld.conf
MouseMode = DRAWING
DblClickSpeed = 18
DblClickArea = 30
RClickTool = 0
Sound = 0
Port = /dev/ttyS0
Port = /dev/ttyS1
Port = /dev/psaux
Port = /dev/usb/tkpanel0
Port = /dev/usb/tkpanel1
```

Note: the setting of ports depends on the outcome of system scanning, but users could amend the port by themselves.

1. Please review **/etc/rc.d/rc.local**, and make sure that the following sentences are added.

```
## TouchKit section begin ( Please do NOT edit this section!! ) ##
    /usr/bin/usbpnpd
    /usr/bin/tpaneld
## TouchKit section end #
```

2. Please review the **XF86Config** file for X Window

   a.) For Red hat Linux :

   Please review **/etc/X11/XF86Config** and make sure that the following sentences are added.

```
## TouchKit section begin ( Please do NOT edit this section!! ) ##
    Section  "InputDevice"
        Identifier "TKPANEL"
        Driver "touchkit"
        Option "Device"         "/dev/tkdat0"
        Option "DebugLevel"   "0"
    EndSection
## TouchKit section end ##
```

b.) For Other Linux distribution:

b-1) XFree86 V4.x

Edit the file **/etc/X11/XF86Config-4** and make sure that the following sentences are added.

```
## TouchKit section begin ( Please do NOT edit this section!! ) ##
        Section  "InputDevice"
            Identifier "TKPANEL"
            Driver "touchkit"
            Option "Device"          "/dev/tkdat0"
            Option "DebugLevel"   "0"
        EndSection
## TouchKit section end ##
```

b-2) XFree86 V3.x

Edit the file **/etc/X11/XF86Config** and make sure that the following sentences are added.

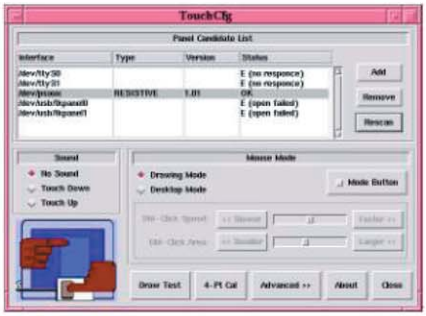
```
## TouchKit section begin (Please do NOT edit this section!!) ##
  Section "Module"
        Load "xf86TouchKit.so"
  EndSection
  Section "Xinput"
        SubSection "touchkitpanel"
            Port "/dev/tkdat0"
            DeviceName "tpanel"
            AlwaysCore
            DebugLevel 0
        EndSubSection
  EndSection
## TouchKit section end ##
```

7. Restart X Window.

8. **/usr/local/TouchKit/diag** contains the following files:

4pcal	4points calibration	ex. 4pcal /dev/ttys0
25pcal	25 points calibration	ex. 25pcal /dev/ttys0
drawtest	drawing test	ex. drawtest /dev/ttys0

The touch-sensitive area of the panel and touch-sensitivity both can be modulated through the configuration utility. Besides, the controller identification and device activated shall be done first.
After installation ***TouchKit***, execute **touchcfg** to start the configuration utility.



The **Panel Candidate List**, which contains by default two RS232, one PS/2 and two USB devices, commands ***TouchKit*** driver which port to probe for controller. If a port is occupied by other device, e.g. **/dev/ttyS1(COM2)** is used by a mouse, it is recommended to **Remove** /dev/ttyS1 from the list, since the probe process would interfere the operation of mouse.

If the user need another com port, for example com3, please go to **/etc/tpaneld.conf** and add the sentence **Port = /dev/ttyS2**.

< tpaneld.conf >
MouseMode = DRAWING
DblClickSpeed = 18
DblClickArea = 30
RClickTool = 0
Sound = 0

Port = /dev/ttyS0
Port = /dev/ttyS1
Port = /dev/psaux
Port = /dev/usb/tkpanel0
Port = /dev/usb/tkpanel1

Port = /dev/ttyS2 is added to use com3
Port = /dev/ttyS3 is added to use com4

After checking that touch panel devices (included its controller) are equipped well, user may click **[Rescan]** button to scan all devices listed. If there are any additional connections excluding default connections, please press **[Add]** button to set specific settings.

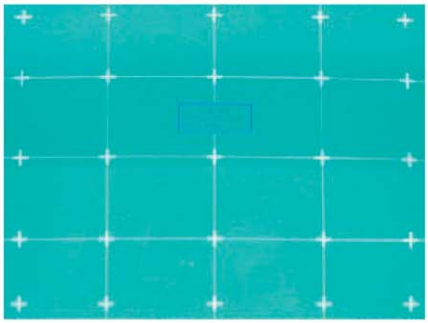
Select one device after import more than one device at the panel list window.
The one selected will activate the panel.

The Sound option provides user the click feedback while the click actions are done.

There are five buttons, **[Draw Test]**, **[4-PT Cal]**, **[Advanced]**, **[About]** and **[Close]**, at the lower section of the TouchCfg window.

<DRAW TEST>

Test the drawing position related to the display screen on panel.
Click on the **[Draw Test]** button. There will be a squared blue display showing.



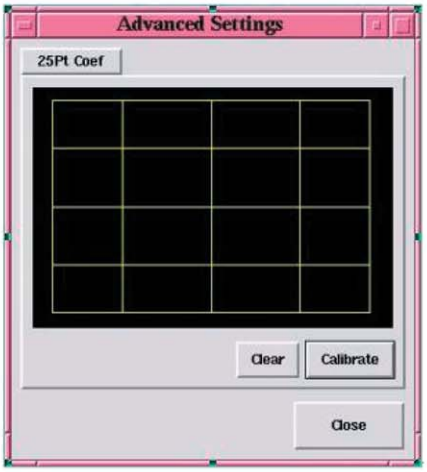
Try to write or draw on it to verify the touch position.
Press **<ESC>** to exit.

<4-PT Cal>

Correct 4 point locations on screen with the panel. Press **[4-PT Cal]**, screen displays as follows.

Touch the blinking symbol on panel until beep or stop blinking.

<Advanced>



Press **[Clear]** to clear the previous calibration records.
The record will become default record.

Press **[Calibrate]** to execute 25 points calibration.
Correct 25 point locations on screen with the panel.

Touch the blinking symbol on panel until beep or stop blinking.
There will be a message window after this correction. After the calibration, the new record will overwrite the old one.

<Mode Button>

Check it or not to turn mouse button, which provides mode selection and right button emulation, on or off.

Change **right / left** button by click the button shown on the right-bottom corner of screen. Blue area expresses what button has been selected.
After select the button, user can touch the panel to control mouse activities. Select / De-select files or Drag icons on screen, whatever the mouse behaves.

<Double Click Speed>

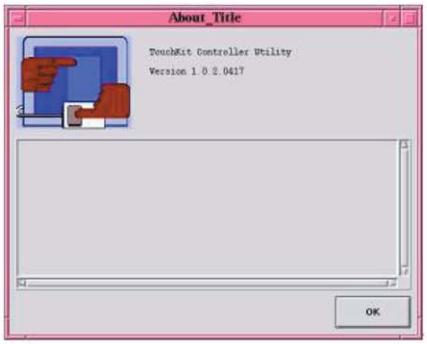
Double Click Speed is the time of the touch panel response when someone double click it. Drag the cursor from left to right is slow to fast.

<Double Click Area>

Each one touch has its own touch tolerance once someone may not fix in one point. So if user sets the Double Click Area to **<Smaller>**, the panel will be very sensitive about micro-move while user wants to fix on a point. If user sets it to **<Larger>**, it tolerates the larger touch point movement while user wants to point at a fixed position.

<About>

Information about ***TouchKit***.



<Close>

Close ***TouchKit*** touch panel utility.

To uninstall ***TouchKit*** all user has to do is execute **uninstall_TouchKit** in **text mode**.

G

Appendix G

EZMonitor Touchscreen Driver Installation and Calibration - MAC

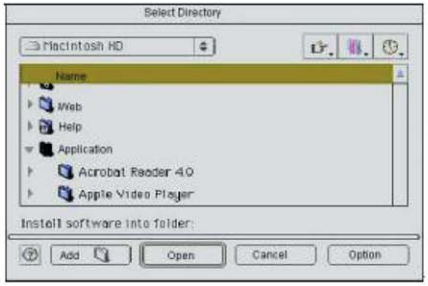
TouchKit is software, which contains drivers of the touch panel controllers for USB on iMAC operation system:

- **Configuration support**
  The calibration and draw test of touch panel are done by this utility.

Follow these steps to install ***TouchKit.***

1. Extract the **iMac.hqx** file to **TouchKit_Installer** with StuffItExpander.
   Double click **TouchKit_Installer** file to start installing.

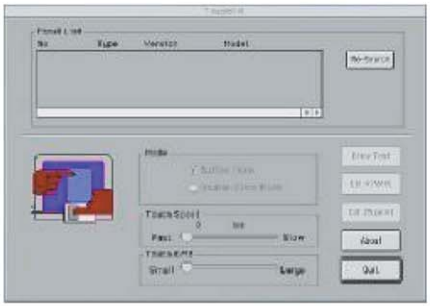
2. Press **[Install]** button to continue.



3. Select directory to install utilities and press **[Open]** button to continue.
   Installation will complete in few seconds.

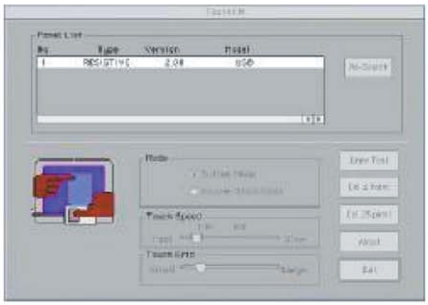
The touch-sensitive area of the panel and touch–sensitivity both can be modulated through the configuration utility. Besides, the controller identification and device activated shall be done first.

After installing ***TouchKit***, double click **[TouchKit Utility]** to start the ***TouchKit*** diagnosis window.



Please check touch panel devices (included its controller) are equipped well, then click **[Re-search]** button to add all of those components to the **Panel List** dialogue box.

There is one or more devices found.



The controller is displayed on the Panel List box. User can get the information of interface, type, version and model for each controller.

If user wants to change the communication port from the existed one to other, select it first and press **[Re-Search]**.
Select one device after import more than one device at the panel list window.

The one selected will activate the panel.

<Mode>

Touchkit provides two mouse modes in for iMac operation system. They are **Button** and **Double Click** mode. **Button** mode is suitable for graphic drawing or hand writing. And, **Double Click** mode is suitable for desktop operation to easy use double click.

Press the **[Mode]** radio buttons to select which mode will be activated.

<Touch Speed>

Touch Speed is the time of the touch panel response when someone touches it. Drag the cursor from left to right is slow to fast.

<Touch Grid>

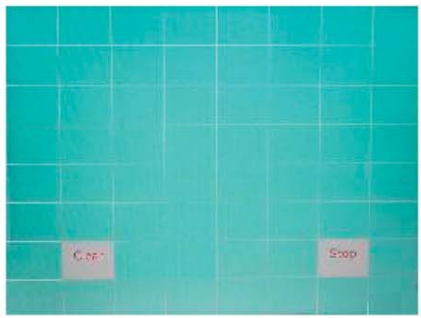
Each one touch has its own touch tolerance once someone may not fix in one point. So if user set the Touch Grid to **<Small>**, the panel will be very sensitive about micro-move while user wants to fix on a point. If user set it to **<Large>**, it tolerates the larger touch point movement while user wants to point at a fixed position.

There are five buttons, **[Draw Test] [Cal 4 point] [Advanced] [ABOUT] [QUIT]**, at the lower section of the Panel List window.

<DRAW TEST>

Test the drawing position related to the display screen on panel.

Click on the **[Draw Test]** button. There will be a squared blue display showing.



Try to write or draw on it to verify the touch position.

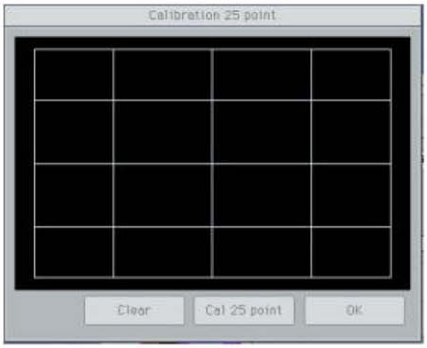
Press **[CLEAR]** for cleaning touch screen, and press **[QUIT]** to exit **Draw Test**.

<Cal 4point>

Correct 4 point locations on screen with the panel. Press **[Cal 4point]**, screen displays as follows.

Touch the blinking symbol on panel until beep or stop blinking.

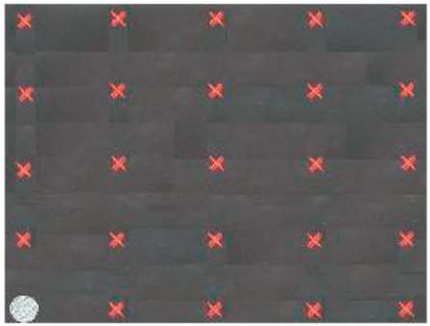
<Advanced>



Press **[Clear]** to clear the previous calibration records.

Press **[Yes]** to clear previous records. The record will become default record.

Then, press **[25ptCal]** to execute 25 points calibration. Correct 25 point locations on screen with the panel.



Touch the blinking symbol on panel until beep or stop blinking.

After the calibration, the new record will overwrite the old one.

<ABOUT>

Information about ***TouchKit***.

<QUIT>

Exit ***TouchKit*** touch panel configuration utility.

Follow these steps to uninstall ***TouchKit.***

1. Double click ***TouchKit Installer*** file first, and choose **uninstall**. Then press **[Uninstall]** button to continue.

2. Choose ***TouchKit*** Folder, then **[Select]** to confirm.

3. Reboot the system.

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Appendix H

EZMonitor Touchscreen Driver Installation and Calibration - DOS

TouchKit is software, which contains drivers of the touch panel controllers for RS232 and PS/2, and utilities for controller configuration:

- **Configuration support**
  Touchkit provides three program utilities for calibration and draw test. They are
  a.) **tp4pcal.exe** for 4 points calibration
  b.) **tp25pcal.exe** for 25 points calibration
  c.) **tpdraw.exe** for draw test

- **Right button support**
  This is utility for emulating the right and left button of mouse through controlling touch panel. User can toggle between right or left mouse buttons with this utility. This utility supports only video mode three.

Follow these steps to install ***TouchKit.***

1. Put the ***TouchKit*** CD to CD-ROM.
2. Change directory to **<CD-ROM drive>:\DOS**
3. Execute the installation program: **INSTALL.BAT**
   For example:

   syntax: install <path of destination directory>

   ```
   E:\DOS>install c:\
   Destination C:\ does not exist; shall I create it? (Y/n)
   Change directory to C:\
   Copy files...
   Copy files...Done
   Append settings to C:\AUTOEXEC.BAT...
   (Original C:\AUTOEXEC.BAT is saved as*.TKT)
   Do you want to activate Right Button Tool? (Y,N)
   ```

   Note: To enable mouse cursor, please launch **MOUSE.COM** before launching **TPANEL.EXE** in **AUTOEXEC.BAT**. For ex.

   ```
   C:\DOS\MOUSE.COM
   TPANEL.EXE
   ```

4. Reboot computer.

After installation ***TouchKit*** and rebooting system, the driver will probe all communication devices by default. Execute **TPANEL -?** for more options.

```
TouchKit for DOS Version 1.00.02.0904

Test TKT1...no panel found
Test TKT2...no panel found
Test  PS2...Loopback OK

Read settings from PS2...OK
Driver installed
```

Note: If user attaches ***TouchKit*** controller to another communication port, please reboot computer.

To avoid confusing the end-user, ***TouchKit*** driver use **the virtual TKT** port name instead of **the com** port name. In order version driver, ***TouchKit*** driver parsers the com1 and com2 from the system environment. **If the user needs another com port, for example com5**, all the end-user to do is **set the environment variables as set COM1 = IOADDR, IRQ**. However, this new driver package **use TKT instead of com**.

This suit supports at most two serial ports; which are **TKT1 (IO:0x3F8 IRQ:4)** and **TKT2 (IO:0x2F8 IRQ:3)** by default. **If BIOS settings differ (ex. COM1 is of IO addr 3E8 and IRQ 4), add one more line (before TPANEL.EXE) in AUTOEXEC.BAT to redirect:**

SET TKT1 = 3E8 4

Also, If the user needs the controller at another serial port (for example, com5 where IO address is 4F8, IRQ is 4), it need to redirect the system environment variable by

SET TKT1 = 4F8 4

before launch TPANEL.EXE in the AUTOEXEC.BAT

TouchKit for DOS also supports three Sound Modes: **NONE, UP and DOWN**. Please go to **C:\TouchKit\> tpanel.ini** to change the sound mode.

< tpanel.ini >

Beep=None 1322

〔promptBegin〕

TouchKit for DOS Version 1.00.02.0904

〔promptEnd〕

Beep = none|down|up [frequency]

none: no sound; keep silent
down: beep when you touch down
up: beep when you touch up

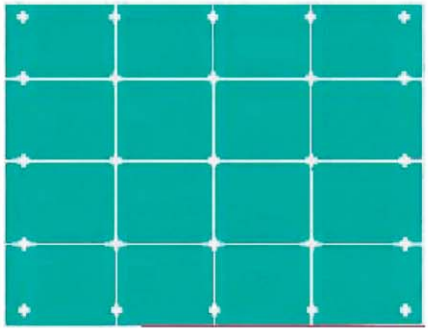
After saving new **tpanel.ini**, user can force the driver to reload the new **tpanel.ini** by executing **C:\TouchKit\>tpanel -r** Other adjustment can be checked by **C:\TouchKit\> tpanel -?**

There are three utilities: **TPDRAW**, **TP4PCAL** and **TP25PCAL** to calibrate touch panel. They all support extra command-line arguments such as **-g 1024x768** behind to specify screen resolution on action.

Resolutions supported: (use 640x480 by default)
320x200, 640x200, 640x350, 640x480, 800x600, 1024x768 and 1280x1024

<TPDRAW>

Test the drawing position related to the display screen on panel.
E.g. C:\>tpdraw tkt2



Try to write or draw on it to verify the touch position.
Press **<ESC>** button to exit.

<TP4PCAL>

Correct 4 point locations on screen with the panel.

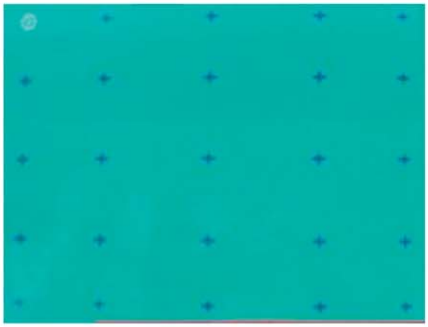
E.g. C:\>tp4pcal tkt2

Touch the blinking symbol on panel until beep or stop blinking.

<TP25PCAL>

Correct 25 point locations on screen with the panel.

E.g. C:\>tp25pcal tkt2



Touch the blinking symbol on panel until beep or stop blinking.

After the calibration, the new record will overwrite the old one.

Right Button Emulator supports only video mode 3 and must start after the driver being installed; user may edit **C:\>AUTOEXEC.BAT** to toggle it on/off. If it is turned on a button will appear in the right-bottom corner of screen when mouse pointer is turned on.

The label of button, which is **[L]** by default and becomes **[R]** after button being clicked, indicates that next **touching down on panel** will be reported as **left (or right) mouse button click**.

Follow these steps to uninstall ***TouchKit.***

For example:

```
C:\>deltree touchkit
Delete directory "touchkit" and all its subdirectories? [yn] y
Deleting touchkit...
C:\>edit autoexec.bat
```

Then delete the following sentence:

```
set path=%path%;C:\touchkit
rem Add your own serial port configuration here, ex. SET TKT1=3E8 4
TPANEL.EXE
rem Execute "TPANEL /?" to list options
RCLICK.COM
rem Right Button Tool
```

Reboot computer.

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